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SULPHARSPHENAMINE.

ITS • MANUFACTURE AND ITS CHEMICAL AND CHEMOTHERAPEUTIC PROPERTIES.

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INTRODUCTION.

In this report we propose to describe an arsphenamine derivative which, as far as the laboratory findings and some preliminary clinical observations are concerned, appears to possess certain definite advantages over the arsenicals in use at present in the treatment and control of syphilis. The principal factors which must be considered in the evaluation of such drugs are the following: (1) Therapeutic efficiency (sterilizing power, constancy of therapeutic action of different lots of the drug); (2) a good margin of safety as regards toxic reactions on the part of the patient; and (3) ease of administration. With regard to these requirements, it is safe to state that arsphenamine has been considered the most effective drug from a therapeutic standpoint; but the more or less elaborate method required for its injection and the special precautions (slow rate of injection) necessary to avoid acute toxic reactions have led the clinician to give preference to neoarsphenamine. As a matter of fact, it is evident from the relative ratio of sales of arsphenamine and neoarsphenamine that the latter is probably used in nine cases out of ten which receive arsenical treatment.

The principal reasons for the popularity of neoarsphenamine are simplicity of technique of administration and less stringent safety requirements for its intravenous injection. But neoarsphenamine, from the chemical and pharmacological point of view, is a drug of uncertain chemical composition, and its solutions are very unstable. Ehrlich (1913) and Voegtlin and Smith (1920) have shown that solutions of neoarsphenamine undergo gradual oxidation, accompanied by an increase in toxicity, amounting to several hundred per cent, and Roth (1920) has discovered that moderate shaking of neoarsphenamine solutions with air at room temperature for a few minutes will accelerate this decomposition enormously. These observations were recently confirmed by Schamberg, Kolmer, and Raiziss (1922). Voegtlin and Smith (1921) and Voegtlin and Miller

(1922) have furthermore found that the parasitocidal power of different batches of neoarsphenamine show variations amounting to 300 per cent, observations which were confirmed and extended by Dale and White (1922) in England.

These findings have led to the adoption of the trypanocidal test in order to insure as far as possible constancy of the drug in the form in which it is put on the market. We believe, however, that these additional safeguards will not completely assure constancy of therapeutic potency under ordinary conditions. First of all, Roth (1921) has shown that about 25-30 per cent of commercial neoarsphenamine deteriorates in the ampule in the course of time; and, furthermore, no assurance exists that the physician using the drug will not manipulate its solution in such a way as to avoid partial decomposition. A further important objection to neoarsphenamine is the fact that it has to be injected intravenously; and as was pointed out in a recent address by Voegtlin (1922), intravenous medication should only be resorted to as a last resort, when, for one reason or another, other routes are contraindicated.

We believe that the new arsphenamine derivative, to be described under the name of sulpharsphenamine, will meet these objections.

MANUFACTURE.

Sulpharsphenamine is prepared from arsphenamine, formaldehyde, and sodium bisulphite, according to the following directions:

The preparation is carried out in two principal stages: (1) Formaldehyde is allowed to react upon arsphenamine (the hydrochloride) with the formation of a condensation product having the formaldehyde attached to both amino groups (formaldehydimide derivative), and (2) the formation of a sulphurous acid ester salt by the addition of sodium bisulphite to the formaldehydimide compound. The theoretical chemical questions involved in these reactions are discussed in a paper which is in press at the time this article is being written.

Preparation of Lot 1420: To 50 gm. of arsphenamine (1 mol.) is added 75 c. c. 95 per cent alcohol, the mixture being stirred thoroughly. The drug is then dissolved at about 20° C. by the addition of 675 c. c. of water, using an efficient mechanical stirring device. After complete solution is obtained, 18.15 c. c. of 33.8 per cent formaldehyde (2 mol.) is added rapidly under vigorous stirring, and about a minute later 65 c. c. of 32.64 per cent of sodium bisulphite (2 mol.) at once. The light yellow precipitate, which forms immediately with the liberation of SO₂, gradually redissolves as stirring is continued. After about 10 minutes another 65 c. c. of the same bisulphite solution (2 mol.) is added, and the stirring is continued. A very slight amount of undissolved material is separated, and the dark orange solution is poured in a fine stream under vigorous stirring into 4,040 c. c. of 95 per cent alcohol. The light yellow precipitate is filtered off, washed with 95 per cent alcohol, followed by absolute alcohol, and the product is dried in vacuum over caustic soda. Yield, 64 gm.

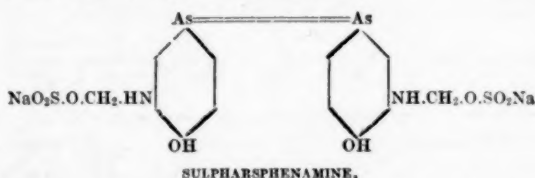
Several conditions must be observed for the successful preparation of this drug: (1) The solution of arsphenamine must be complete before the formaldehyde is added (alcohol facilitates the rapidity of solution and also has a tendency to prevent the formation of a jelly after the addition of formaldehyde); (2) sufficient time should elapse to allow the formaldehyde to react with arsphenamine—usually one minute—but not enough time to cause the formation of a viscous mass which will not readily dissolve upon the addition of bisulphite; (3) the bisulphite should be added in two portions, each portion being added rapidly about seven minutes apart; (4) the formaldehyde and bisulphite solutions should be analyzed for their strength; (5) the bisulphite must be prepared freshly from Na_2CO_3 and SO_2 ; (6) 2 mol. of formaldehyde and 4 mol. of bisulphite per 1 mol. of arsphenamine are usually satisfactory, though 3 mol. of formaldehyde and 6 mol. of bisulphite seem to be more favorable proportions.

For the calculation of molecular proportions of arsphenamine, formaldehyde, and bisulphite the actual arsenic content of arsphenamine was taken as a basis, and the strength of formaldehyde and bisulphite was determined quantitatively.

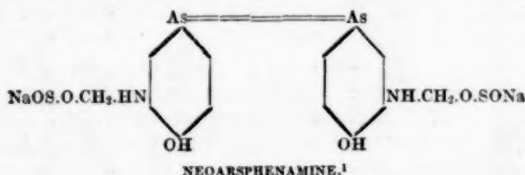
The manufacture was also tried out on a larger scale, using a batch of 1 kilogram of arsphenamine. The reactions proceeded with even greater ease than when smaller quantities were used, and the yield was very satisfactory. On account of the relative cheapness of the reagents required and of the slightness of the chance of losing a batch, the product ought not to be more expensive than arsphenamine, a point which is of importance when consideration is given to the enormous quantities of the arsenicals used in the control of syphilis.

CHEMICAL AND PHYSICAL PROPERTIES.

As will be shown in another publication, the arsenic is present as a compound of the following constitution:



Sulpharsphenamine has, therefore, a side chain differing from that of neoarsphenamine by the presence of one additional atom of oxygen.



¹ Commercial neoarsphenamine may be a mono- or di-substitution product or a mixture of the two.

The free acid of sulpharsphenamine was isolated by treatment with glacial acetic acid and on analysis yielded a ratio As : N : S of 1 : 1 : 1, which is to be expected of a di-substitution product.

Sulpharsphenamine is a light yellowish powder, the appearance of which on exposure for days to moderately dry air does not change. It dissolves with the greatest ease in cold water, forming a yellow to orange solution according to concentration. Ten per cent and stronger solutions, after several days standing, form a yellow jelly, indicating the colloidal nature of the drug. No color change takes place, however, on exposing aqueous solutions to air at room temperature even for weeks (contrast to neoarsphenamine, which gradually assumes a dark greenish brown appearance). The hydrogen ion concentration of a 1 per cent solution of 20 different batches, determined by means of bromphenol-blue and methyl-red varied between 3.2 and 4.6, the reaction, therefore, being decidedly on the acid side. Freezing point determinations gave average values of 2.6 and 4.6 atmospheres for 5 and 10 per cent solutions, respectively. Physiological saline (0.85 per cent NaCl) has an osmotic pressure of 6.14 atmospheres. Ten per cent sulpharsphenamine is therefore considerably hypotonic with respect to blood. The drug yields the same qualitative tests as neoarsphenamine (Myers and DuMez).

A simple test to differentiate between sulpharsphenamine and neoarsphenamine consists in treating the solutions with a few drops of an indigocarmin solution, which is decolorized by neoarsphenamine but not by sulpharsphenamine. When the solution of the latter is reduced with a little zinc dust and acetic acid, the filtrate will then reduce the dye. This test, if positive, indicates a group $\equiv \text{C.O.SONa}$. Reduction of sulpharsphenamine with zinc changes the side chain $-\text{NH.CH}_2.\text{O.SO}_2\text{Na}$ to $-\text{NH.CH}_2.\text{O.SONa}$, that of neoarsphenamine.

TABLE I.—Summary of preparation of various lots of sulpharsphenamine and their composition.

Lot No.	Arsphenamine used. (Grams.)	Solvent. (Parts.)	HCHO. (Mol.)	NaHSO. (Mol.)	Yield. (Grams.)	Nitrogen. (Percent.)	Arsenic. (Per cent.)	Sulphur. (Per cent.)	Atomic ratio. (As:S.)
1364...	5	15 H ₂ O.....	2	4	5.9	3.93	21.67	12.13	1:1.31
1366...	5	do.....	2	4	5.5	4.12	22.45	12.14	1:1.26
1389...	50	do.....	2	4	61.0	4.00	21.80	11.68	1:1.25
1390...	10	do.....	2	4	5.4	3.85	23.81	11.47	1:1.12
1391...	50	do.....	2	4	63.0	4.22	22.24	11.04	1:1.16
1393...	5	11.5 alcohol. } 13.5 H ₂ O.....	2	4	6.0	4.09	23.47	10.85	1:1.08
1395...	5	15 H ₂ O.....	2	4	4.0	4.04	23.74	10.22	1:1.01
1398...	5	do.....	2	4	5.0	3.90	23.16	10.82	1:1.09
1399...	5	11.5 alcohol. } 13.5 H ₂ O.....	2	4	6.0	4.11	23.60	10.95	1:1.08
1400...	30	do.....	2	2	36.0	4.25	22.32	8.72	1:0.91
1413...	10	do.....	2	4	11.9	3.92	21.31	11.21	1:1.23
1414...	7	do.....	2	4	7.2	4.13	23.05	10.89	1:1.10
1415...	4.8	do.....	2	4	3.8	4.00	22.06	10.85	1:1.15
1420...	50	do.....	2	4	64.0	3.95	21.68	10.48	1:1.13
1426...	10	do.....	3	4	14.5	3.53	19.40	11.99	1:1.44
1428...	10	do.....	3	6	11.4	3.89	21.68	10.48	1:1.22
1451...	10	do.....	3	6	13.0	3.63	20.77	12.88	1:1.45
1593...	1,000	do.....	2.25	4	1120.0	.....	23.60	9.86	1:0.98

The average arsenic content of sulpharsphenamine is 22 per cent, of arsphenamine 30 per cent, and of neoarsphenamine 18 to 20 per cent. The impurities which lower the arsenic content of sulpharsphenamine below the theoretical (25.06 per cent As for disodium salt) are principally inorganic salts, as in the case of neoarsphenamine. Table I gives a summary of the preparation of the various lots made and their composition. It may suffice here to call attention to the fair constancy of the product, and this in spite of the fact that arsphenamine obtained from different manufacturers was used—in some cases, even, batches which did not meet the official requirements of the toxicity test. The large batch (Lot 1593) was made from miscellaneous ampules of arsphenamine which had accumulated during the past three years.²

METHOD OF ADMINISTRATION.

Sulpharsphenamine is as well tolerated when injected intravenously as is neoarsphenamine. Intramuscular injections of concentrated solutions cause some local reaction, which is, however, much less severe than that following similar injections of arsphenamine or neoarsphenamine. The principal advantage of sulpharsphenamine is that it can be injected subcutaneously with impunity, provided that for full therapeutic doses the concentration is kept high (20 to 30 per cent). Lieutenant Commander Powell, United States Navy, who very kindly performed some preliminary clinical tests, found that a 20 per cent solution (0.4 to 0.6 gm.) injected into the subscapular region is well tolerated, whereas the same doses given in 5 or 10 per cent solution produced some local edema, which, however, disappeared within a few days, leaving no noticeable change. Dilute solutions produce a slight burning sensation at the site of injection, this lasting only a very short time.

TOXICITY.

The toxicity was established in albino rats, using the official intravenous technique, and also by subcutaneous injection in rats. The intravenous injection is well tolerated when doses up to about two-thirds of the M. L. D. are used. Higher doses very often produce diarrhea with or without the appearance of blood in the feces, muscular weakness, and, at times, hematuria. After lethal doses slight tremors of the whole body are sometimes in evidence, lasting until death.

² Sulfarsenol, a product manufactured by Laboratoire de Biochemie médicale (R. Pluchon), is a product which is similar to the product described by us, but its method of preparation has been kept a trade secret.

A German patent (D R P 249726) refers to a reddish brown product made by prolonged heating on the water bath of arsphenamine base, formaldehyde, and sodium bisulphite. We have repeated the preparation of this product, following minutely the directions given in the patent, and have obtained a reddish product differing in many essential chemical, physical, and biologic properties from sulpharsphenamine. The method described in this paper is therefore original, as will be seen from the above data.

There is always a considerable gain in body weight during the week following the injection, and this is quite pronounced even with slightly sublethal doses, which indicates that the drug does not in any way interfere with the growth of the animal.

TABLE II.—*Toxicity and trypanocidal action of intravenous and subcutaneous sulpharsphenamine injections in rats.*

Lot No.	Minimum lethal dose. (Mg. per kilo.)		Minimum effective dose. (Mg. per kilo.)		Lot No.	Minimum lethal dose. (Mg. per kilo.)		Minimum effective dose. (Mg. per kilo.)	
	Intra-venous.	Subcuta-neous.	Intra-venous.	Subcuta-neous.		Intra-venous.	Subcuta-neous.	Intra-venous.	Subcuta-neous.
1364.....	380	400	26	26	1400.....	360	570	16.8	25.2
1366.....	480	400	16.7	25	1413.....	400	620	26.4	26.4
1389.....	400	470	25.8	25.8	1414.....	360	520	24.0	24.0
1390.....	440	700	31.5	23.4	1415.....	400	570	17.0	34.0
1391.....	400	640	16.8	25.2	1420.....	440	570	26.0	17.3
1393.....	360	470	15.9	23.8	1426.....	420	570	28.9	28.9
1395.....	320	500	23.7	15.6	1428.....	380	470	26.0	26.0
1398.....	400	560	24.3	24.3	1451.....	410	570	27.0	27.0
1399.....	360	420	15.9	31.8	1503.....	400	.....	23.8	.....

The necropsy findings are not at all constant and consist in congestion of the lungs, increase in pleural fluid, hemorrhages in the intestinal wall, and congestion or paleness of the kidneys and liver.

Table II gives a summary of the toxicity work with rats. It will be seen that, using the intravenous injection, the most toxic preparation is Lot 1395 (M. L. D. 320 mg. per kilo); the least toxic Lot 1366 (M. L. D. 480 mg. per kilo). The official regulations governing the sale of arsphenamine require that arsphenamine shall have a maximum tolerated dose not below 120 mg. per kilo, and neoarsphenamine must pass at least at 200 mg. per kilo. It is evident, then, that these preparations of sulpharsphenamine are far less toxic than preparations of arsphenamine or neoarsphenamine which just fulfill the official requirements. This difference between the three drugs is still more pronounced when the toxicity of subcutaneous injections of sulpharsphenamine is considered, a fact which justifies the conclusion that sulpharsphenamine is a drug of extremely low toxicity as compared with that of arsphenamine and neoarsphenamine. Reference is here made to an examination of the toxicity of commercial samples of arsphenamine and neoarsphenamine of recent manufacture which will emphasize this point (Carl Voegtlin and D. W. Miller, 1922).

Chart 1 illustrates the mortality rate of rats dying within the first week following intravenous injection and is presented principally for the purpose of comparing the mortality rate of arsphenamine and sulpharsphenamine under identical conditions. It will be noted that both drugs cause death acutely in the large majority of animals, 87 per cent within 24 hours with arsphenamine and 56 per cent with sulpharsphenamine. On the whole, the length of life after

injection of sulpharsphenamine is slightly longer than that following the injection of arsphenamine. This point is of importance for the official toxicity control of this drug, and we suggest here that the period of observation for the determination of toxicity be four days.

The mortality rate after *subcutaneous* injection in rats is practically

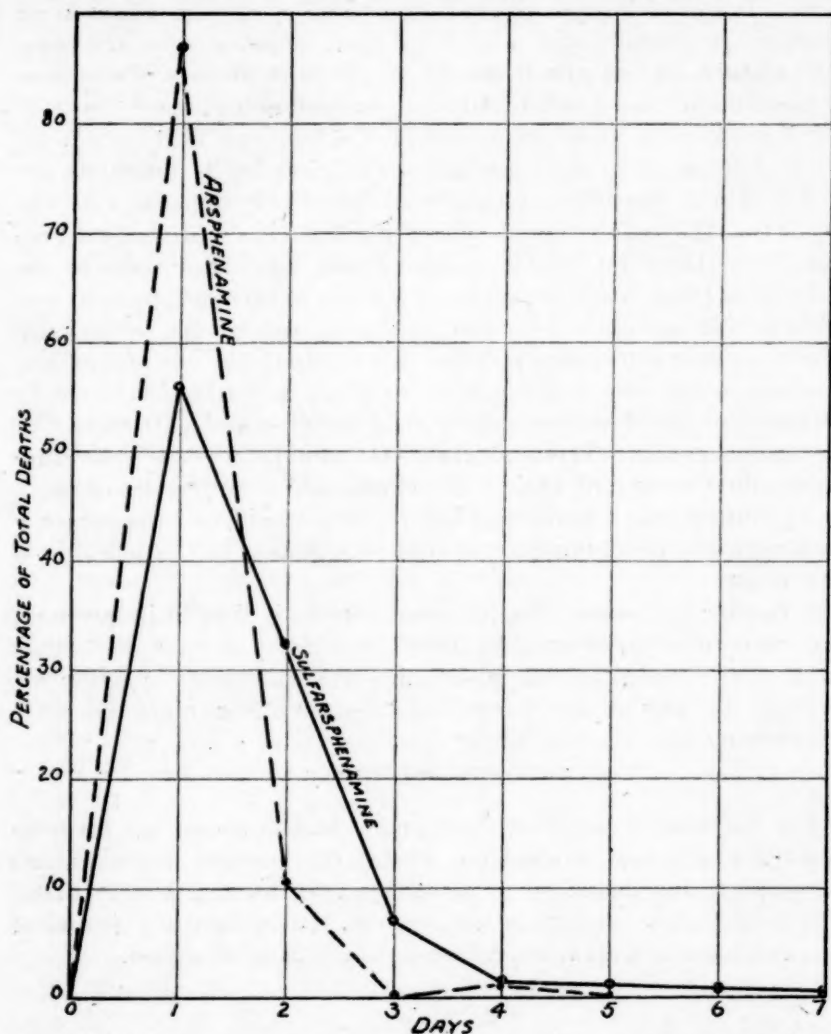


CHART 1.—Comparison of mortality among rats, following injections of arsphenamine and sulpharsphenamine.

the same as the one for intravenous injection, and for this reason has been omitted in Chart 1.

The toxicity of an average preparation (Lot 1391) was also established by intravenous injection into rabbits, and a minimum lethal dose of 320 mg. per kilo was found. In rats the M. L. D. of the

same preparation was 400 mg. per kilo. This finding conforms with other experience regarding the relative toxicity of arsphenamine derivatives in these two species, the rabbit being somewhat more susceptible than albino rats.

The work so far discussed always dealt with freshly prepared solutions. It was of interest to study the stability of such solutions on standing in contact with air in an open vessel at ordinary room temperature, and also to determine whether the toxicity of solutions of the drug increased as a result of vigorous shaking.

Solutions were made from lots 1389, 1390, and 1391, and were allowed to stand in open graduated cylinders for 24 hours, at the end of which time the solutions were tested for toxicity, with the result that the toxicity figures obtained did not in the slightest degree vary from those for freshly prepared solutions. Solutions of the same three preparations were also vigorously shaken in glass cylinders with air for 10 minutes without producing any change in toxicity. The conclusion is therefore justified that aqueous solutions of sulpharsphenamine are very stable indeed, which is in striking contrast to solutions of the disodium salt of arsphenamine and particularly of neoarsphenamine. These observations would therefore constitute an absolute safeguard against decomposition of sulpharsphenamine in its clinical use, a point which is of very considerable importance with regard to the elimination of toxic reactions in the patient due to this cause.

A further advantage of sulpharsphenamine is that in its preparation the use of arsphenamine which just fails to pass the official toxicity test yields sulpharsphenamine of good quality, passing the toxicity test as high as other material prepared from much less toxic arsphenamine.

TRYPANOCIDAL POWER.

For the determination of the trypanocidal power of our preparations the technique worked out during the last few years in this laboratory, and described in detail by Voegtlin and Miller (1922), was used with this modification, namely, that a four-day period of observation was chosen in preference to the 24-hour period.

TABLE III.—*Minimum effective dose at different time intervals following treatment.*

(Doses expressed as c. c. 1/100 arsenic equivalent solution per kilo body weight. Intravenous—Iv.; subcutaneous—Sc.)

Lot No.	24 hours.		48 hours.		72 hours.		96 hours.		120 hours.		144 hours.	
	Iv.	Sc.	Iv.	Sc.	Iv.	Sc.	Iv.	Sc.	Iv.	Sc.	Iv.	Sc.
1364.....	15.0	15.0	7.5	7.5	7.5	7.5	5.0	7.5	5.0	7.5	5.0	7.5
1366.....	10.0	15.0	10.0	10.0	10.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1389.....	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1390.....	10.0	10.0	10.0	10.0	10.0	7.5	10.0	7.5	10.0	7.5	10.0	7.5
1391.....	10.0	10.0	7.5	10.0	7.5	10.0	7.5	10.0	7.5	7.5	5.0	7.5
1393.....	10.0	10.0	7.5	7.5	7.5	7.5	5.0	7.5	5.0	7.5	5.0	7.5
1395.....	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	5.0
1398.....	10.0	10.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1399.....	7.5	10.0	7.5	10.0	7.5	10.0	5.0	7.5	5.0	7.5	5.0	7.5
1400.....	7.5	10.0	7.5	10.0	7.5	10.0	5.0	7.5	5.0	7.5	5.0	7.5
1413.....	10.0	10.0	10.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1414.....	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1415.....	7.5	10.0	7.5	10.0	7.5	10.0	7.5	10.0	5.0	10.0	5.0	10.0
1420.....	10.0	7.5	7.5	7.5	7.5	7.5	7.5	5.0	7.5	5.0	7.5	5.0
1426.....	10.0	10.0	10.0	10.0	10.0	10.0	7.5	7.5	7.5	7.5	7.5	7.5
1428.....	10.0	10.0	7.5	10.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1451.....	10.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1503.....	10.0	.....	.....	.....	7.5	.....	7.5	.....	7.5	.....	7.5	.....

We have had several occasions to point out that this trypanocidal test yields very satisfactory evidence with regard to the parasitocidal action of arsenicals and permits a biological assay of the relative value of different arsenicals with regard to their spirocheticidal action. The results obtained with this test in rats infected with *Trypanosoma equiperdum* are summarized in Table II and need very little comment. Attention is called to the considerable constancy of the trypanocidal power of the different sulpharsphenamine preparations, no matter whether the drug is administered by vein or subcutaneously. Such extreme variations as are found between different neoarsphenamines are totally absent; i. e., the method of preparation as described in this paper yields products of fairly constant parasitocidal value, and this in spite of the fact that arsphenamine of varying toxicity and manufacture was used. The average minimum effective dose is 7.5 c. c., which is identical with that of the average commercial neoarsphenamine on the market at the present time. From Table III it is evident that the maximum parasitocidal effect is not always reached in 24 hours, but often only after 3 or 4 days. This is in striking contrast with our experience with arsphenamine and neoarsphenamine, drugs which produce their maximum effect in 24 hours. Sulpharsphenamine must therefore be considered as acting more slowly upon the parasites than the other arsphenamines. Should this hold true for the spirocheticidal action of sulpharsphenamine, and there is no obvious reason to doubt it, this property might constitute another advantage over the well-known arsphenamines, on the ground that a slow action of the drug upon the parasites might tend to prevent the occurrence of reactions due to the liberation of spirochetal material following the

rapid breakdown of parasites. On theoretical grounds, a remedy with slow action on the syphilitic process would have to be given preference.

As a further illustration of the rate of parasitocidal action of sulpharsphenamine, attention is called to Chart 2, which represents the so-called action curves of one and one-half the minimum effective dose of arsphenamine and sulpharsphenamine. Three rats were used for each group experiment, arsphenamine being injected intravenously; sulpharsphenamine either intravenously or subcutaneously. The initial trypanosome count was taken immediately before treatment, and the count was followed thereafter at intervals. The blood of all animals was free from parasites 24 hours after treatment; yet the speed of the disappearance of the parasites differed very considerably, arsphenamine acting most rapidly, sulpharsphenamine given subcutaneously coming next, and then, slowest of all, sulpharsphenamine given intravenously. In the latter experiments, over six hours elapsed before the first parasites died. We have no explanation of this difference in the behavior of these two drugs and can only suggest that it may be due to differences in the rate of their breakdown in the body to the corresponding single ring trivalent arsenious oxide compounds, which, as we have shown previously (Voegtlin and Smith, 1920), represent the active modification of all arsenicals.

The figures given for the minimum effective dose are a measure of the killing power of the drug for a definite number of trypanosomes. It is of interest, of course, to know also the sterilizing effect of a given dose, i. e., the dose which will cure the animal permanently of the infection. In Table IV data are presented which give information as to the percentage of animals, treated with the different arsenicals, which relapsed after having been treated with 1, 1½, 2, or 3 minimum effective doses of arsphenamine, neoarsphenamine, and sulpharsphenamine. The period of observation necessary to determine whether or not an animal was permanently cured was 30 days. It will be seen from Table IV that sulpharsphenamine given subcutaneously produces a greater percentage of cures than the other arsenicals.

TABLE IV.—Comparison of relapses after treatment with arsphenamine, neoarsphenamine, and sulpharsphenamine in rats infected with *Tr. equiperdum*.

Preparation and method of administration.	Percentage of relapses.			
	M. E. D.	1½ M.E.D.	2 M. E. D.	3 M.E.D.
Arsphenamine, intravenously.....	91.6	72.2	10.0	43.7
Neoarsphenamine, intravenously.....	50.0	33.3	0.0	.....
Sulpharsphenamine, intravenously.....	53.6	20.5	4.5	.....
Sulpharsphenamine, subcutaneously.....	34.2	8.8	0.0	.....

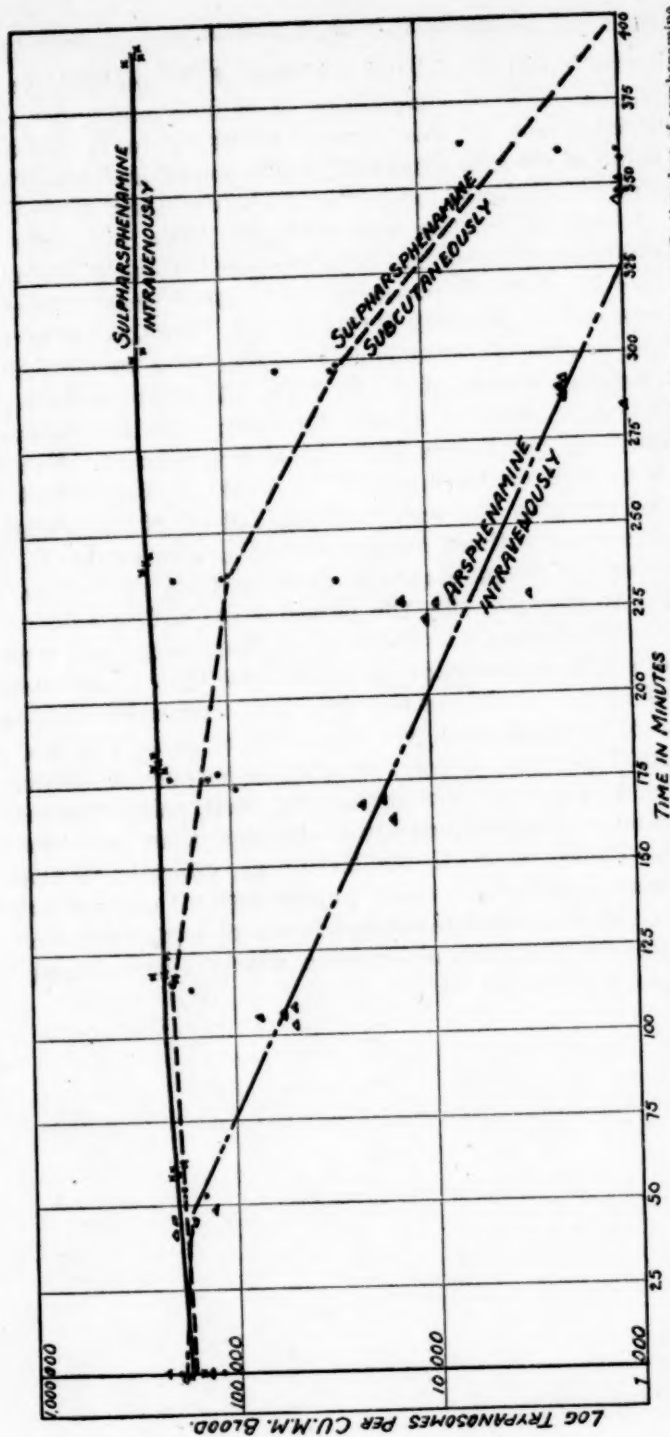


CHART 2.—Comparison of rates of parasitocidal action of arspenamine and sulpharsphenamine—Action curves of one and one-half the minimum effective dose of arspenamine and sulpharsphenamine.

SPIROCHETICIDAL POWER.

In order to furnish additional evidence of the probable value of sulpharsphenamine in the treatment of syphilis and other related spirochete infections, it was deemed necessary to determine the relative value of the new drug and arsphenamine and neoarsphenamine on rabbits infected with the Nichols's strain of *Spirocheta pallida*. A series of rabbits was inoculated with this strain, and, after pronounced chancres had been produced, some of the rabbits were treated by single intravenous injections of graded doses of a German neoarsphenamine (M. E. D. 5 c. c.). Another set of syphilitic rabbits received subcutaneous injections of a 10 per cent sulpharsphenamine solution (M. E. D. 7.5 c. c.), also in graded doses. Table V shows that in all rabbits the spirochetes had completely disappeared from the lesions 24 hours after treatment. The doses used were selected on the basis of the work of Ehrlich and Hata (1910), dealing with the spirocheticidal effect of arsphenamine. According to these authors, single doses of arsphenamine of 15 mg. per kilo cause the disappearance of parasites from the lesions; with a dose of 5-10 mg. per kilo, the parasites are still in evidence for two days; smaller doses are ineffective. When compared with our figures for sulpharsphenamine, it is obvious that a subcutaneous injection of 15 mg. per kilo of this drug is at least as effective as the same dose of arsphenamine, yet sulpharsphenamine Lot No. 1451 contains 20.77 per cent arsenic, whereas arsphenamine contains on the average 30 per cent. On the arsenic basis, sulpharsphenamine has, therefore, a higher spirocheticidal value than arsphenamine. Commander Powell, U. S. N. Medical Corps, informed us that one case of primary syphilis in a sailor treated with 0.4 gram of sulpharsphenamine showed complete disappearance of spirochetes from the chancre after 24 hours, an observation which is in harmony with what has just been stated.

TABLE V.—*Spirocheticidal action of neosarsphenamine and sulpharsphenamine (1451) on rabbits.*

No. and weight of animal.	Subcutaneous inoculation of Nichols's Treponema pallidum, July 17, 1922, or—	Microscopic and macroscopic examination of lesions before treatment, Sept. 25, 1922.	Intravenous. Dose of neosarsphenamine, G., 1401. (10 per cent solvent used.)		24-hour microscopic examination.	Further examination of lesions.
			Mg. per Kilob.	c. c. 1/100 As equivalent.		
8. Wgt., 2.27.	Left testicle.	Wgt., 1.72. Chancre in both glands. Right: Marked induration, with black crust $\frac{1}{4}$ cm. in diameter; spirochetes fairly numerous. Left: Marked induration; bloody exudate showing a few organisms. Pus-ture fluid: Spirochetes very numerous. Wassermann, + + + +.	15	4.06	1 doubtful spirochete found in examination of several specimens from left gland. Negative from right gland.	Sept. 28: Micros. exam. neg. Right side indurated. Swelling gone down. Left gland indurated; small amount of bloody fluid still oozing out. Oct. 2: No induration. Black crust still present. Micros. exam. neg.
4. Wgt., 2.166.	Left testicle.	Wgt., 2.26. Large black crust $1\frac{1}{2}$ cm. in diameter, with much induration of left gland. Wassermann, + + + +. Fluid taken from periphery of crust shows more than 100 spirochetes per field.	27	7.3	Negative from left gland.	Sept. 28: Considerable shrinkage of induration. Micros. exam. neg. Oct. 2: Induration almost completely gone. Small, reddish scar 4 mm. diameter. Oct. 10: Lesion practically healed; small scar.
3. Wgt., 1.64.	Right testicle.	Wgt., 1.65. Both testicles hard. Left shows no superficial lesion. 3-4 spirochetes per field. Right shows small superficial crust. Countless spirochetes per field. Wassermann, + + + +.	36	9.7	Negative from right gland.	Sept. 28: Induration much less marked in both glands. Micros. exam. neg. Oct. 2: Slight induration in both glands. Small crust 3 mm. diam. on left. Crust gone from right; practically healed. Oct. 10: Both glands healed.
7. Wgt., 2.17.	Left testicle.	Wgt., 2.2. Right gland normal. Left shows large chancre, black, hard crust $1\frac{1}{4}$ cm. in diameter, with much induration. Wassermann, + + + +. Spirochetes countless per field.	15	4.16	Negative in 2 preparations from left gland.	Sept. 28: Induration less marked. Micros. exam. neg. Oct. 2: Slight induration still present. Black crust unchanged in appearance. Oct. 10: Unchanged. Micros. exam. neg.

TABLE V.—*Spirocheticidal action of neoarsphenamine and sulpharsphenamine (1451) on rabbits*—Continued.

No. and weight of animal.	Subcutaneous inoculation of Nichols's Treponema pallidum, July 17, 1922, on—	Macroscopic and microscopic examination of lesions before treatment, Sept. 25, 1922.	Subcutaneous. Dose of sulpharsphenamine, p. 1451. (10 per cent solvent used.)		24-hour microscopic examination.	Further examination of lesions.
			Mg. per kilo.	e. c. 1/100 As equivalent.		
2. Wgt., 2.0..	Left testicle.	Wgt., 2.07. Large chancre 1 cm. in diameter in left testicle, with considerable induration of gland. Wassermann, ++++. Spirochetes countless per field.	27	7.5	Negative from left gland.	Sept. 28: Induration less marked. Micros. exam. neg. Oct. 2: No induration. Black crust unchanged in appearance. Oct. 10: Scab 4 mm. in diam.
6. Wgt., 2.29.	Left testicle.	Wgt., 2.67. Large chancre in left testicle, with hard black crust 1 cm. in diameter. Marked induration of gland. Wassermann, ++++. Spirochetes countless per field.	36	10.0	Negative from left gland.	Sept. 28: Less induration. Micros. exam. neg. Oct. 2: Practically no induration. Black scab 1 cm. in diam. Oct. 10: Black scab fallen off; small new scab formed.
5. Wgt., 2.18.	Left testicle.	Wgt., 2.26. Left testicle shows an indurated area $\frac{1}{2}$ cm. in diameter covered with black protruding crust. Wassermann, ++++. Puncture juice shows one definite spirochete.	50	13.8	Negative from left gland.	Sept. 28: Induration slightly less. Oct. 2: No induration. Crust still present. Oct. 10: Small scab $\frac{3}{4}$ mm. in diam.

A further interesting deduction to be made from these data is that whereas 7.5 c. c. 1/100 arsenic equivalent solution per kilo body weight of sulpharsphenamine is required to clear the blood of rats from trypanosomes, 4.16 c. c., or probably less, is sufficient to clear the lesions of syphilitic rabbits, i. e., less arsenic is necessary in the rabbit than in the rat. This may be due to the greater number of parasites present in the body of the rat as compared with the number of parasites in the rabbit, and would confirm again some of our older work on the relation between size of dose and number of parasites killed.

Furthermore, a comparison of the toxicity and parasitocidal value of the various lots of sulpharsphenamine shows that the chemotherapeutic index, or the margin of safety, of this drug is at least as good as that of the most potent drug so far known, namely arsphenamine.

SUMMARY.

The data presented show that sulpharsphenamine is an arsphenamine derivative very closely related in chemical structure to neoarsphenamine. This slight change in chemical constitution, however, imparts to the drug certain definite advantages over neoarsphenamine, as (1) ease of manufacture, (2) great stability of drug in the dry form and in watery solutions, (3) constancy of toxic and parasitocidal action of different lots, and (4) suitability for hypodermic administration. Every one of these advantages is of far-reaching importance, when consideration is given to the fact that enormous numbers of doses of arsphenamine are used in the control of syphilis.

As far as the experimental evidence is concerned, the above-mentioned advantages of sulpharsphenamine are firmly established. However, we strongly emphasize that before this drug can be introduced for general use, it will be necessary to give it an exhaustive trial as to its curative power in human syphilis. There is no way to predict the outcome of this trial. The clinical studies especially will have to consider whether or not sulpharsphenamine has, for normal and syphilitic tissue, the same penetrating power as, or better than, arsphenamine and neoarsphenamine. After all, the main difficulty with the arsenicals in present use appears to consist in their failure to reach the last spirochetes which may be buried in lesions that are difficultly accessible. It is obvious that incomplete sterilization of the patient due to this cause will prevent a cure and will cause, sooner or later, clinical relapses. In this respect syphilis differs markedly from diseases due to organisms which are closely related to *Treponema pallidum*. Yaws and relapsing fever may be cured with a single injection, or a few injections, of arsphenamine. This is of particular significance in view of the fact that the parasite responsible for yaws

is morphologically and in other ways so similar to *Treponema pallidum* that certain investigators consider the former as merely a different strain of the latter organism. Hence, the most reasonable explanation of the difference in the curative power of arsphenamine in syphilis, on the one hand, and yaws and relapsing fever on the other, is probably to be found in the specific pathology of syphilis, which favors the hiding of parasites in recesses inaccessible to arsphenamine. We suggest that sulpharsphenamine be given a clinical trial, particularly in patients with difficulty accessible veins (adipose patients, infants), and cases which exhibit an unusual idiosyncrasy to intravenous treatment. In view of the fact that the parasitocidal action of sulpharsphenamine is slower than that of the arsphenamine, the former drug might be of use in cases with indications of an extensive syphilitic involvement of the cardiovascular system, in which a slow action of the remedy is desirable. Under these conditions a subcutaneous injection of sulpharsphenamine should be of value on account of the gradual absorption of the drug.

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NUTRITION AND EDUCATION.

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Two insistent questions arise in the minds of thoughtful parents everywhere: Shall I send my child to school as soon as the law says he is old enough to go, or would it be better for his health if I kept him out till he is older? If he seems brighter than the average child, will it be detrimental to his health to permit him to be "accelerated"—to make as rapid progress through the school grades as his teachers desire?

The answers to these questions, from both physicians and educators, have been usually merely an expression of opinion colored by the viewpoint of the person consulted. In view of the contradictory character of the data on which a reply to such questions might be in some measure based, and in order to study the subject in what might be called a fairly typical American community, the present investi-

gation was made in the schools of a small city in the Middle West. This school system might be called a representative one, comprising three elementary schools, a junior high school, and a senior high school. The superintendent was a man of good professional training and progressive outlook, and many of his teachers were excellent. A very large majority of the pupils were of native American stock or of English, Scotch, or Irish ancestry.

Though it is believed that the relation between height and weight according to existing standards is not always a reliable index of the child's health, this criterion is used in these studies because no simple accurate measure applicable to large numbers is at present available. The arbitrary 7 per cent "line" was used to separate the children into two classes, those falling 7 per cent or more below the average standard of weight for height and age being considered under weight. In these studies the 7 per cent "line" is considered as a standard of attainment and possibly as an indication of poor physical condition on the part of the child that falls below it. From this standpoint it is felt that the comparative studies in this investigation will prove sufficiently suggestive to stimulate further research in the same subject.

In this investigation the results of the spring weighing rather than the fall weighing are used, because it is believed that the later weight serves as a better indication of the relation between health and school life.

A general survey of the school population showed that of 2,068 children weighed and measured in one of the spring months, 487, or 23.5 per cent, were under weight.

This underweight was distributed among the schools as follows:

TABLE I.—*Correlation of nutrition and periods of school life.*

School.	Number of children weighed.	Number under weight.	Percentage under weight.
Elementary (3).....	1, 126	237	21.0
Junior high.....	520	124	23.8
Senior high.....	422	125	29.8

On the surface, these figures would indicate a moderate increase of underweight during school life. But such a conclusion would scarcely be justified without a fuller knowledge of growth and development during adolescence than can be derived simply from the height-weight-age index. Undoubtedly, as shown by the results of experienced estimation of nutrition by the Dunfermline scale and by critical study of the greater relative variation in weight in children

with increasing age, other factors must be taken into consideration in estimating the physical fitness of all children and particularly of adolescents. It is generally believed that there is a greater amount of malnutrition among younger children than among older ones. An evaluation of nutrition by the Dunfermline scale, the use of which presupposes medical training and experience, has given results directly opposed to those shown in Table I, where the classification is based solely on height, weight, and age. In a study of nearly 10,000 school children made by the United States Public Health Service¹ there is shown a decrease in malnutrition from the younger to the older ages.

A statistical study² of anthropometric data collected by officers of the Public Health Service brought out the fact that relative variation in weight of children of given height increases appreciably with age. Since older children vary in weight more than younger, a 7 per cent line of demarcation is too restricted for the high-school age. With wider normal variations, the margins allowed for underweight and overweight must be greater.

A similar variation has also been observed by Baldwin.³

The data considered in the preceding discussion concern children of all ages for grade—the normal age for grade, the overage, and the underage pupils. To shed some light on the problem of the most desirable age for the various periods of school life, it is necessary to study these groups separately. This part of the work was limited to the elementary and junior high schools.

Nutrition and Age for Grade.

ELEMENTARY SCHOOLS.

Normal-age-for-grade children.—Of 572 normal age for grade children in the elementary schools, 118, or 20.6 per cent, were underweight at the final weighing in March. Only 12, or 3.4 per cent, of the 346 children who were above the 7 per cent line at the beginning of school in the fall, fell to or below it during the school year. Apparently, only 3.4 per cent of these normal-age children were adversely affected by conditions during the school term, or by their school work.

On the other hand, 120, or 53 per cent, of the 226 children who were under weight on entering school in the fall went above the 7 per cent line during the year.

¹Clark, Talliaferro: Nutrition in School Children. Jour. Am. Med. Assoc., vol. 79, No. 7, Aug. 12, 1922, pp. 519-524.

²Clark, Talliaferro, Sydenstricker, Edgar, and Collins, Selwyn, D.: Heights and Weights of School Children—A Study of the Heights and Weights of 14,335 Native White School Children in Maryland, Virginia, and North and South Carolina. Public Health Reports, vol. 37, No. 29, May 19, 1922, pp. 1185-1207. (Reprint No. 750.)

³Baldwin, B. T.: The Physical Growth of Children from Birth to Maturity. University of Iowa Studies in Child Welfare, First Series, No. 50. Vol. I, No. 1, June 1, 1921. Iowa City, Iowa.

It might be stated that some nutrition work was carried on in the schools during this period, but this work was conducted quite irrespective of the age for grade status of the children. Since the effect of these measures will be felt in all groups, they may be largely disregarded in a comparative study of the groups.

Overage-for-grade children.—There were 465 overage for grade children in the elementary schools. Of this number 105, or 22.6 per cent, were under weight at the spring weighing. Of the 282 overage children who began the school year with less than 7 per cent underweight, 8, or 2.8 per cent, fell to or below that line during the year in school.

On the other hand, of 183 children underweight in the fall, 86, or 46.9 per cent, came up to the standard by the spring. As in the case of the normal-age children, the number gaining was vastly superior to the number losing during the school year. It is interesting to note that the ratio of loss to gain is so nearly the same in these two groups.

Underage-for-grade children.—The number of children under age for grade in any school will naturally be less than the number of either normal-age or overage pupils. The majority of children are sent to school at the normal age and advance at the normal rate, though large numbers, for one reason or another, are found among the overage-for-grade pupils. In the elementary schools studied there were 92 underage-for-grade pupils. Of this number 20, or 21.7 per cent, were underweight at the spring weighing. Fifty of these underage children were up to the standard of weight when they began school in the fall, and only 1 of them (2 per cent) fell below it during the period of observation. Of 42 underage children who were underweight in the fall, 23, or 54.7 per cent, could not be so classified in the spring, because they had come up to the standard.

In Table II the data relating to the elementary schools have been arranged for the purpose of easy comparison.

TABLE II.—*Correlation of nutrition and age for grade in elementary schools.*

Age for grade.	Number of children.	Per cent underweight.	Per cent of underweight children attaining standard of weight during period of observation.	Per cent of normal weight children falling below standard during period of observation.	Per cent taking milk lunch.
Normal age.....	572	20.6	53.0	3.4	70
Overage.....	465	22.5	46.9	2.8	52
Underage.....	92	21.7	54.7	2.0	69

It will be seen at a glance that the amount of underweight among the normal-age, overage, and underage pupils in the early spring is practically the same. From the standpoint of weight it seems evident that the year in the schools investigated was not detrimental to the health of the pupils; the descent into the underweight class among those who were not there in the beginning has been remarkably limited in extent.

The marked increase in weight in each group is probably due partly to the fact that the maximum increment takes place normally between October and February⁴ and to the milk lunch furnished at the morning and afternoon recesses, in addition to some instruction in nutrition. Since school feeding is a recognized part of school hygiene and has been incorporated in the school system studied, this feature of the school life of this community should have equal consideration in relation both to the health of the pupils and to the school work. It is interesting, therefore, to note the close correlation between the percentage taking the milk lunch and the percentage showing weight increase during the year. Practically the same percentage of normal-age and underage children had the milk lunch at some time during the year, and the percentages of these two groups attaining the weight standard are almost the same. A considerably smaller percentage of overage children took the milk and a correspondingly smaller percentage of these children came up to weight during the year. It would be unfair to any school system to consider only the school side of the work and ignore all specific measures undertaken to safeguard the health of the pupils.

In order to gain some idea as to how far physical defects may have influenced the weight status of the pupils, a study was made of physical defects in relation to age for grade. The results are summarized in Table III.

TABLE III.—*Physical defects and age for grade.*

Age for grade.	Average number of physical defects per pupil.
Overage.....	1.57
Normal age.....	1.44
Underage.....	1.41

A comparison of Tables II and III shows that among the overage-for-grade pupils there was slightly more underweight and a slightly higher average of physical defects per pupil. In other words, the overage pupils in the elementary schools were a little lighter in weight

⁴ Porter, W. T.: Seasonal Variation in the Growth of Boston School Children. *Am. Jour. of Phys.*, May, 1920, vol. 52, pp. 121-131.

and had a slightly higher average number of physical defects per pupil than either the normal-age or underage pupils. These differences, however, are slight.

JUNIOR HIGH SCHOOL.

All of the seventh and eighth grade pupils, most of the sixth-grade, and a few fifth-grade children were taught at the junior high school by the usual methods in vogue at institutions of the same character. Most of the year there was considerable overcrowding at this school.

Overage-for-grade pupils.—There were 268 overage children in the junior high school, and 68, or 25.4 per cent, of this number were found to be underweight in the spring. One hundred and sixty of these children entered school in the fall in a well-nourished condition, and all but 5, or 3.1 per cent, maintained this position in the spring. Of the 108 children who were underweight at entrance, 45, or 41.6 per cent, came up to the required standard by the time of the spring weighing.

Underage for grade.—The number of underage children in the junior high school was small, only 56 pupils coming under this classification. Of these, 20, or 35.7 per cent, were underweight in the spring. One-half (28) of these underage children were up to the weight standard on beginning the school year, and all but one (3.5 per cent) held this position at the end of the year.

Of the other half of this group—those children who were underweight in the fall—9, or 32.1 per cent, came up to standard by the time of the spring weighing.

The data for supplying exact figures relating to normal-age children in the junior high school are lacking, but it is easy to see from the percentage of underweight of all the children in the school and from the figures for the overage and underage pupils that the percentage of underweight children among the normal-age children would be about 20.

TABLE IV.—Correlation of nutrition and age for grade in junior high schools.

Age for grade.	Number of children.	Per cent underweight.	Per cent of underweight children attaining standard weight during period of observation.	Per cent of normal weight children falling below standard during period of observation.
Overage.....	268	25.3	41.6	3.1
Underage.....	56	35.7	32.1	3.5

There were 90 pupils in the junior high school who had the milk lunch for varying periods during the school year, but their distribution as to age for grade is not sufficiently well known to be of use as a comparative factor. It may be said, however, that the correlation noted in the case of the elementary schools points to the influence of this feature in the weight increases.

The point of most interest in Table IV is the large percentage of underweight among the underage-for-grade children in the junior high school. Does this mean that the work of the junior high school is detrimental to the health of the *young* pupil, and that a child should not be allowed to enter that school unless he has reached at least the normal age for his grade? But reweighing in March showed that almost exactly the same percentage of overage pupils had fallen below the standard as underage pupils. In other words, the older children lost in exactly the same proportion as the younger ones.

A comparison of the gains in these two groups shows a larger percentage in the overage group; but since this is complicated by the question of extra nutrition, and since data regarding age-for-grade and milk lunches are incomplete, the comparison may not be a safe one. A reweighing in June would have been desirable, particularly in the junior high school.

Since to say that a child is underage for grade means that he has reached a certain school grade at an age younger than the normal, it usually means also that he is brighter mentally than the average child. May it be possible that these lighter-weight children at this particular age period are brighter than the heavier children? This is in contrast to the findings in Detroit⁵ but agrees with those reported by the Bureau of Educational Experiments⁶ with reference to the Terman classes. These classes were made up of exceptionally bright pupils from the sixth, seventh, and eighth grades (junior high-school grades) and contained a much larger percentage of underweight children than the regular sixth and seventh grades.

Nutrition and Acceleration.

The underage child is not necessarily the accelerated child. If a child begins earlier, he will reach a class before the normal-age child, though both travel at the same rate. The really accelerated child is the one who covers more ground in the same time. In this sense there were a number of accelerated pupils in both the elementary schools and the junior high school.

⁵ Packer, Paul C., and Moehlman, Arthur B.: A Preliminary Study of Standards of Growth in the Detroit Public Schools. The Detroit Educational Bulletin, No. 5, June, 1921.

⁶ Hunt, J. L., Johnson, B. J., and Lincoln, E. M.: Health Education and the Nutrition Class. E. P. Dutton & Co., New York, 1921.

In the elementary schools there were 63 accelerated pupils,⁷ 27 per cent of whom at the last weighing were underweight. It will be recalled that the percentage of underweight among all the children in the elementary schools was 21. These exceptional children, with a percentage of 27, are lighter than the general run of children in the elementary schools. The age-for-grade and nutritional status of the group are shown in Table V.

TABLE V.—*Correlation of nutrition and acceleration in elementary schools.*

Age for grade.	Number of pupils.	Number underweight.	Per cent underweight.
All ages.....	63	17	27.0
Overage.....	15	3	20.0
Normal age.....	39	12	30.7
Underage.....	9	2	22.2

It will be seen from this table that the largest percentage of underweight is among the normal-age children and the least among the overage. The overage children are slightly heavier than the underage children in this exceptional group.

It was especially desired to ascertain whether the March weighing would show any unfavorable results as regards weight from the extra school work which these children had undertaken. The data on this question are presented in Table VI.

TABLE VI.—*Nutritional changes from October to March among accelerated children in the elementary schools.*

Age for grade.	Children gaining good nutritional status.		Children losing good nutritional status.	
	Number.	Per cent.	Number.	Per cent.
All ages.....	11	44.0	3	7.9
Overage.....	3	60.0	1	10.0
Normal age.....	6	37.5	2	8.7
Underage.....	2	50.0	0	0.0

As in other classes in the schools, the percentage of gains is much greater than the percentage of losses. While the average percentage of gains is very much the same in the accelerated group and the elementary schools as a whole, it must be acknowledged that the percentage of losses is greater among the accelerated pupils. However, the numbers in the various age-for-grade groups—overage, normal age, and underage—are too small to give their statistics much value, and it is only in the group as a whole that the percentage of loss can be given much consideration. This percentage, 7.9, is

⁷ Accelerated pupils are permitted to take additional studies, making it possible to advance more than one grade a year.

twice as great as that for any age group in the elementary schools as a whole. To recapitulate, among a group of 63 accelerated children of various ages, distributed through the elementary grades, 38 were in good nutritional status in the fall, and 25 were underweight. Of the 38 up to the standard of weight, 3, or 7.9 per cent, fell to or below it during the year. Of the 25 underweight pupils, 11, or 44 per cent, came up to the standard.

Acceleration in the Junior High School.

In the junior high school there were two accelerated classes in the seventh and eighth grades, a total of 67 pupils.

TABLE VII.—*Correlation of nutrition and acceleration in junior high school.*

Age for grade.	Number of pupils.	Number underweight.	Per cent.
All ages.....	67	22	32.8
Overage.....	4	0	0.0
Normal age.....	40	12	30.0
Underage.....	23	10	43.4

Table VII shows that the percentage of underweight in these accelerated classes, 32.8, is greater than that in the junior high school as a whole, which is 23.8 per cent. The percentage of underweight among the underage pupils is considerably greater than among the normal age. The few overage children in the group are all up to the standard of weight.

As in the case of the elementary schools, the last weighing in the spring was compared with the first weighing in the fall. The result is given in Table VIII.

TABLE VIII.—*Nutritional changes from October to March among accelerated pupils in the junior high school.*

Age for grade.	Children gaining good nutritional status.		Children losing good nutritional status.	
	Number.	Per cent.	Number.	Per cent.
All ages.....	10	33.3	2	5.4
Overage.....	1	100.0	0	0.0
Normal age.....	5	33.3	2	8.0
Underage.....	4	28.5	0	0.0

In the various age groups the numbers are too small to be significant. The number of overage pupils is too few to be considered. Of the four overage pupils, only one was underweight in the fall, and that one came up to the standard.

Taken as a whole, however, the findings in this group are suggestive. Of these 67 pupils, 37 were in good nutritional status in the fall and 30 were underweight. Two of the 37, or 5.4 per cent, fell to or below the line between October and March; while of the 30 underweight in the fall, 10, or 33.3 per cent, came up to the standard. It may be noted that the percentage of those changing from a poor to a good nutritional status is less in the junior high school than in the elementary schools.

TABLE IX.—*Nutrition, age for grade, and acceleration in elementary and junior high schools.*

Classification.	Per cent underweight.
All pupils.....	22
Over-age-for-grade pupils.....	24
Under-age-for-grade pupils.....	27
Accelerated pupils.....	30

Summary.

The work of the elementary grades apparently had little, if any, adverse effect on the pupils' weight. Of the children who entered the schools up to the standard of weight in the fall, remarkably few were under weight in March. This was entirely irrespective of the age of the pupil, the underage child making quite as good showing as the normal age or overage child.

There was a slightly larger amount of underweight among the overage children in the elementary schools, as well as a slightly larger average number of physical defects per child.

There was a large percentage of underweight among the underage children in the junior high school. Also there was a larger percentage of underweight among the bright children in the accelerated groups, both in the elementary and junior high schools, than among the other children.

As in the elementary schools, there was shown to be only a small percentage of change from a good to a poor nutritional status in the junior high school, from October to March, among the children doing regular grade work.

Acceleration in the elementary schools shows a larger percentage of change from good to poor nutritional status than does acceleration in the junior high school, or the regular grade work of either school. In the accelerated classes of the junior high school similar changes are less than among the accelerated pupils in the elementary schools, but greater than among the children doing regular grade work. It must be remembered, however, that a much larger number of accel-

erated children should be studied in order to arrive at results which might be considered as in any way definitely conclusive.

Conclusions.

In view of the data summarized above, it is evident that at least tentative answers may be given to the questions which furnished the motive for this investigation and which have been stated in the beginning of the report. It must be remembered, however, that the number of pupils studied is somewhat limited, and that the findings apply to the particular school system studied. It is to be hoped that other investigators will pursue studies similar to this one in order that additional evidence on these important subjects may be forthcoming.

1. Since it was shown quite definitely that few of the children who were up to the standard of weight on entering the elementary schools in the fall were below that standard six months later, and that this was true irrespective of the age of the pupil, it follows that parents need not hesitate to send a healthy child to school at the age of 6, which was the entrance age of the schools studied. It seems plain that school life, apart from detrimental influences which may exist in the home environment, is not ordinarily a menace to the child's state of nutrition.

2. As acceleration in the elementary schools shows a larger percentage of change from a good to a poor nutritional status than does acceleration in the junior high school, or the regular grade work of either school, it would seem that caution should be observed in accelerating young children—those of the elementary school age. At the junior high school age this need is not so evident, although it apparently exists to some extent.

DEATHS DURING WEEK ENDED OCTOBER 28, 1922.

Summary of information received by telegraph from industrial insurance companies for week ended October 28, 1922, and corresponding week, 1921. (From the Weekly Health Index, October 31, 1922, issued by the Bureau of the Census, Department of Commerce.)

	Week ended Oct. 28, 1922.	Corresponding week, 1921.
Policies in force.....	51, 013, 643	48, 053, 197
Number of death claims.....	8, 041	8, 114
Death claims per 1,000 policies in force, annual rate.....	8. 2	8. 8

Deaths from all causes in certain large cities of the United States during the week ended October 28, 1922, infant mortality, annual death rate, and comparison with corresponding week of 1921. (From the Weekly Health Index, October 31, 1922, issued by the Bureau of the Census, Department of Commerce.)

City.	Estimated population July 1, 1922	Week ended Oct. 28, 1922.		Annual death rate per 1,000, corresponding week 1921.	Deaths under 1 year.		Infant mortality rate, week ended Oct. 28, 1922. ³
		Total deaths.	Death rate. ¹		Week ended Oct. 28, 1922.	Corresponding week 1921.	
Total.....	27,746,928	6,300	11.8	11.5	856	839	.....
Akron, Ohio.....	² 208,435	32	8.0	6.8	6	6	64
Albany, N. Y.....	116,223	33	14.8	15.4	6	3	135
Atlanta, Ga.....	220,047	66	15.6	13.8	6	6	.....
Baltimore, Md.....	762,222	180	12.9	13.1	29	36	82
Birmingham, Ala.....	191,017	47	12.8	14.3	5	4	.....
Boston, Mass.....	764,017	223	15.2	13.1	36	22	96
Bridgeport, Conn.....	³ 143,555	22	8.0	11.5	4	6	50
Buffalo, N. Y.....	528,163	114	11.3	12.0	21	26	83
Cambridge, Mass.....	110,944	28	13.2	9.4	6	3	110
Camden, N. J.....	121,915	29	12.4	10.5	6	3	92
Chicago, Ill.....	² 833,288	553	10.2	11.2	80	97	.....
Cincinnati, Ohio.....	404,865	116	14.9	13.6	15	9	100
Cleveland, Ohio.....	854,565	172	10.5	11.0	32	28	83
Columbus, Ohio.....	253,455	56	11.5	15.1	9	8	95
Dallas, Tex.....	171,974	40	12.1	12.6	8	3	.....
Dayton, Ohio.....	161,824	41	13.2	10.2	2	6	34
Denver, Colo.....	267,591	97	18.9	14.5	4	10	.....
Detroit, Mich.....	³ 993,678	217	11.4	8.1	48	26	92
Fall River, Mass.....	120,700	36	15.5	10.8	11	2	154
Fort Worth, Tex.....	114,717	22	10.0	.....	4	.....	.....
Grand Rapids, Mich.....	143,572	26	9.4	10.3	4	5	67
Houston, Tex.....	150,087	43	14.9	13.7	4	9	.....
Indianapolis, Ind.....	333,257	85	13.3	11.4	6	4	46
Jersey City, N. J.....	305,911	69	11.8	10.7	13	10	83
Kansas City, Kans.....	113,801	35	16.0	17.6	4	3	92
Kansas City, Mo.....	343,988	104	15.8	12.7	8	15	.....
Los Angeles, Calif.....	634,866	165	13.6	11.8	22	13	91
Louisville, Ky.....	256,877	54	11.0	15.0	6	5	65
Lowell, Mass.....	114,423	26	11.8	14.7	6	11	101
Memphis, Tenn.....	167,862	60	18.6	17.3	2	6	.....
Milwaukee, Wis.....	476,603	76	8.3	9.1	9	13	44
Minneapolis, Minn.....	400,970	72	9.4	11.4	4	15	22
Nashville, Tenn.....	122,832	38	16.1	22.6	2	2	.....
New Bedford, Mass.....	127,542	28	11.4	9.2	8	4	119
New Haven, Conn.....	169,987	43	13.2	7.8	3	4	37
New Orleans, La.....	399,616	113	14.7	19.4	22	12	.....
New York, N. Y.....	⁵ 839,746	1,208	10.8	10.7	167	161	65
Newark, N. J.....	431,792	78	9.4	8.6	9	14	40
Norfolk, Va.....	124,915	22	9.2	12.9	3	5	53
Oakland, Calif.....	233,279	40	8.9	9.2	0	0	0
Omaha, Nebr.....	200,739	44	11.4	13.0	4	5	43
Paterson, N. J.....	138,521	29	10.9	12.1	1	2	15
Philadelphia, Pa.....	1,894,500	446	12.3	11.9	58	67	69
Pittsburgh, Pa.....	607,902	169	14.5	14.2	22	29	70
Portland, Oreg.....	269,240	70	13.6	8.5	7	2	69
Providence, R. I.....	241,011	58	12.5	11.5	7	8	55
Richmond, Va.....	178,365	47	13.7	11.6	7	6	85
Rochester, N. Y.....	311,548	66	11.0	10.4	7	12	54
St. Louis, Mo.....	795,008	188	12.3	11.5	25	18	.....
St. Paul, Minn.....	239,836	38	8.3	9.2	3	3	28
Salt Lake City, Utah.....	123,918	25	10.5	12.0	5	5	75
San Antonio, Tex.....	178,056	46	13.5	.....	7	.....	.....
San Francisco, Calif.....	529,792	126	12.4	11.2	6	5	35
Spokane, Wash.....	104,445	21	10.5	14.5	2	2	43
Springfield, Mass.....	140,052	27	10.1	10.4	2	7	30
Syracuse, N. Y.....	181,012	36	10.4	9.4	3	5	36
Toledo, Ohio.....	260,717	57	11.4	12.9	12	8	117
Trenton, N. J.....	125,075	31	12.9	11.9	4	7	61
Washington, D. C.....	³ 437,571	138	16.4	14.7	18	16	103
Wilmington, Del.....	115,568	19	8.6	6.9	2	5	39
Worcester, Mass.....	188,449	45	12.5	11.8	7	3	76
Yonkers, N. Y.....	105,422	25	12.4	9.1	3	3	63
Youngstown, Ohio.....	144,970	31	11.2	9.3	4	4	53

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1921. Cities left blank are not in the registration area for births.

³ Enumerated population Jan. 1, 1920.

PREVALENCE OF DISEASE.

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.

UNITED STATES.

CURRENT STATE SUMMARIES.

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

Reports for Week Ended November 4, 1922.

ALABAMA.		Cases.	COLORADO.		Cases.
			(Exclusive of Denver.)		
Dengue.....		30	Chicken pox.....		3
Diphtheria.....		42	Diphtheria.....		20
Hookworm disease.....		12	Impetigo contagiosa.....		1
Influenza.....		69	Measles.....		1
Malaria.....		60	Mumps.....		2
Scabies.....		21	Pneumonia.....		2
Scarlet fever.....		9	Scarlet fever.....		37
Trachoma.....		1	Smallpox.....		8
Tuberculosis.....		15	Tuberculosis.....		47
Typhoid fever.....		15	Typhoid fever.....		32
ARKANSAS.			CONNECTICUT.		
Chicken pox.....		16	Cerebrospinal meningitis.....		1
Diphtheria.....		26	Chicken pox.....		36
Hookworm disease.....		1	Diphtheria.....		91
Influenza.....		2	Dysentery.....		1
Malaria.....		79	Influenza.....		7
Measles.....		1	Malaria.....		3
Ophthalmia neonatorum.....		1	Measles.....		147
Pellagra.....		5	Mumps.....		9
Scarlet fever.....		9	Paratyphoid fever.....		1
Trachoma.....		5	Pneumonia (lobar).....		22
Tuberculosis.....		19	Poliomyelitis.....		4
Typhoid fever.....		27	Scarlet fever.....		79
Whooping cough.....		2	Smallpox.....		1
CALIFORNIA.			Tetanus.....		2
Cerebrospinal meningitis:			Tuberculosis (all forms).....		34
Orange County.....		1	Typhoid fever.....		8
Palo Alto.....		1	Whooping cough.....		64
Diphtheria.....		175	DELAWARE.		
Influenza.....		28	Chicken pox.....		7
Lethargic encephalitis—Los Angeles.....		1	Diphtheria.....		3
Measles.....		6	Malaria.....		1
Poliomyelitis:			Scarlet fever:		
Fresno County.....		1	Wilmington.....		12
Los Angeles.....		1	Scattering.....		3
Scarlet fever.....		108	Tuberculosis.....		10
Smallpox.....		3	Typhoid fever.....		3
Typhoid fever.....		13			

FLORIDA.		Cases.	IOWA.		Cases.
Dengue.....		76	Diphtheria.....		127
Diphtheria.....		22	Scarlet fever.....		118
Influenza.....		13	Smallpox.....		2
Malaria.....		44	Typhoid fever.....		6
Pneumonia.....		23			
Poliomyelitis.....		1	KANSAS.		
Scarlet fever.....		1	Cerebrospinal meningitis.....		3
Smallpox.....		2	Chicken pox.....		42
Typhoid fever.....		10	Diphtheria.....		154
			German measles.....		2
GEORGIA.			Influenza.....		2
Chicken pox.....		2	Lethargic encephalitis.....		1
Dengue.....		100	Malaria.....		1
Diphtheria.....		39	Measles.....		24
Hookworm disease.....		28	Mumps.....		5
Influenza.....		47	Pneumonia.....		16
Malaria.....		58	Scarlet fever.....		138
Measles.....		2	Septic sore throat.....		1
Paratyphoid fever.....		1	Smallpox.....		3
Pneumonia.....		7	Tetanus.....		2
Scarlet fever.....		17	Tuberculosis.....		39
Smallpox.....		8	Typhoid fever.....		21
Tuberculosis (pulmonary).....		10	Whooping cough.....		12
Typhoid fever.....		4			
Typhus fever.....		2	LOUISIANA.		
			Dengue.....		11,834
ILLINOIS.			Diphtheria.....		25
Cerebrospinal meningitis:			Influenza.....		8
Chicago.....		1	Malaria.....		27
Livingston County.....		1	Scarlet fever.....		6
Diphtheria:			Smallpox.....		3
Cook County (including Chicago).....		248	Typhoid fever.....		12
Chicago.....		217			
Fulton County.....		11	MAINE.		
Greene County.....		8	Chicken pox.....		6
Kane County.....		20	Diphtheria.....		27
Macon County.....		10	German measles.....		2
Madison County.....		14	Influenza.....		1
Morgan County.....		8	Measles.....		4
Saline County.....		12	Pneumonia.....		7
Will County.....		10	Scarlet fever.....		28
Scattering.....		139	Tetanus.....		1
Influenza.....		22	Tuberculosis.....		11
Pneumonia.....		236	Typhoid fever.....		4
Poliomyelitis:			Whooping cough.....		32
Chicago.....		4			
Kane County.....		1	MARYLAND. ¹		
Macon County.....		1	Chicken pox.....		37
Scarlet fever:			Diphtheria.....		122
Chicago.....		78	Dysentery.....		7
Henry County.....		12	German measles.....		2
La Salle County.....		17	Influenza.....		22
McLean County.....		8	Lethargic encephalitis.....		1
Peoria County.....		19	Malaria.....		6
Scattering.....		157	Measles.....		44
Smallpox:			Mumps.....		42
Whiteside County.....		15	Pneumonia (all forms).....		59
Scattering.....		4	Poliomyelitis.....		1
Typhoid fever.....		65	Scarlet fever.....		64
Whooping cough.....		152	Septic sore throat.....		2
			Tuberculosis.....		54
INDIANA.			Typhoid fever.....		43
Diphtheria.....		226	Whooping cough.....		43
Poliomyelitis—Lake County.....		1			
Scarlet fever.....		169	MASSACHUSETTS.		
Smallpox.....		12	Chicken pox.....		69
Typhoid fever.....		28	Conjunctivitis (suppurative).....		6
			Diphtheria.....		277

¹ 1,575 of these cases occurred prior to week ended Nov. 4.² Week ended Friday.

MASSACHUSETTS—continued.	Cases.
German measles.....	1
Influenza.....	15
Lethargic encephalitis.....	2
Malaria.....	5
Measles.....	214
Mumps.....	82
Ophthalmia neonatorum.....	12
Pellagra.....	1
Pneumonia (lobar).....	75
Poliomyelitis.....	5
Rabies.....	1
Scarlet fever.....	149
Septic sore throat.....	2
Tetanus.....	3
Trichinosis.....	1
Tuberculosis (all forms).....	104
Typhoid fever.....	15
Whooping cough.....	225

MICHIGAN.

Diphtheria.....	337
Measles.....	12
Pneumonia.....	76
Scarlet fever.....	282
Smallpox.....	33
Tuberculosis.....	38
Typhoid fever.....	47
Whooping cough.....	79

MINNESOTA.

Cerebrospinal meningitis.....	2
Chicken pox.....	10
Diphtheria.....	147
Influenza.....	4
Measles.....	3
Pneumonia.....	3
Scarlet fever.....	206
Smallpox.....	17
Tuberculosis.....	53
Typhoid fever.....	9
Whooping cough.....	3

MISSISSIPPI.

Dengue.....	81
Diphtheria.....	71
Polioomyelitis.....	1
Scarlet fever.....	20
Smallpox.....	36
Typhoid fever.....	18

MONTANA.

Diphtheria.....	5
Scarlet fever.....	17
Smallpox.....	8
Typhoid fever.....	1

NEBRASKA.

Chicken pox.....	14
Diphtheria:	
Omaha.....	15
Platte County.....	10
Scattering.....	41
Measles.....	1
Mumps.....	3
Poliomyelitis:	
Alda.....	1
Avoca.....	1

NEBRASKA—continued.	
Scarlet fever:	Cases.
Boone County.....	10
Platte County.....	14
Winside.....	10
Scattering.....	80
Septic sore throat.....	1
Tetanus.....	2
Typhoid fever.....	4
Whooping cough.....	3

NEW JERSEY.

Cerebrospinal meningitis.....	4
Chicken pox.....	57
Diphtheria.....	232
Influenza.....	17
Malaria.....	1
Measles.....	95
Pneumonia.....	78
Poliomyelitis.....	3
Scarlet fever.....	120
Smallpox.....	1
Trachoma.....	1
Typhoid fever.....	27
Whooping cough.....	109

NEW MEXICO.

Chicken pox.....	15
Conjunctivitis.....	1
Diphtheria.....	26
Dysentery.....	1
Influenza.....	1
Malaria.....	1
Measles.....	1
Mumps.....	3
Pneumonia.....	4
Scarlet fever.....	5
Smallpox.....	1
Tetanus.....	1
Tuberculosis.....	30
Typhoid fever.....	29

NEW YORK.

(Exclusive of New York City.)

Diphtheria.....	274
Influenza.....	12
Measles.....	77
Paratyphoid fever.....	7
Pneumonia.....	175
Poliomyelitis.....	19
Scarlet fever.....	239
Smallpox.....	4
Tetanus.....	5
Typhoid fever.....	41
Whooping cough.....	207

NORTH CAROLINA.

Cerebrospinal meningitis.....	1
Chickenpox.....	46
Diphtheria.....	406
German measles.....	3
Lethargic encephalitis.....	1
Measles.....	99
Poliomyelitis.....	2
Scarlet fever.....	154

NORTH CAROLINA—continued.		Cases.	WASHINGTON—continued.		Cases.
Septic sore throat.....	2		Impetigo contagiosa.....	7	
Smallpox.....	5		Measles.....	7	
Typhoid fever.....	24		Mumps.....	9	
Whooping cough.....	142		Poliomyelitis—Seattle.....	1	
OREGON.			Scarlet fever:		
Chicken pox.....	10		Seattle.....	14	
Diphtheria:			Spokane.....	8	
Multnomah County.....	10		Yakima.....	8	
Scattering.....	16		Scattering.....	18	
Measles.....	1		Smallpox.....	5	
Mumps.....	4		Tuberculosis.....	23	
Pneumonia.....	12		Typhoid fever.....	31	
Scarlet fever.....	11		Whooping cough.....	32	
Septic sore throat.....	12		WEST VIRGINIA.		
Smallpox:.			Diphtheria:		
Portland.....	8		Huntington.....	14	
Scattering.....	14		Scattering.....	39	
Tuberculosis.....	6		Scarlet fever:		
Typhoid fever.....	7		Parkersburg.....	9	
Whooping cough.....	5		Scattering.....	15	
SOUTH DAKOTA.			Typhoid fever.....	5	
Chicken pox.....	6		WISCONSIN.		
Diphtheria.....	22		Milwaukee:		
Measles.....	3		Chicken pox.....	25	
Pneumonia.....	4		Diphtheria.....	35	
Scarlet fever.....	50		German measles.....	1	
Smallpox.....	9		Measles.....	324	
Tuberculosis.....	55		Pneumonia.....	3	
Typhoid fever.....	8		Scarlet fever.....	45	
TEXAS.			Smallpox.....	1	
Dengue.....	1,854		Tuberculosis.....	10	
Diphtheria.....	57		Whooping cough.....	15	
Influenza.....	4		Scattering:		
Pellagra.....	7		Cerebrospinal meningitis.....	1	
Pneumonia.....	16		Chicken pox.....	91	
Scarlet fever.....	9		Diphtheria.....	99	
Typhoid fever.....	21		Influenza.....	30	
VERMONT.			Measles.....	164	
Chicken pox.....	10		Pneumonia.....	6	
Diphtheria.....	16		Poliomyelitis.....	2	
Measles.....	1		Scarlet fever.....	157	
Scarlet fever.....	25		Smallpox.....	19	
Typhoid fever.....	4		Tuberculosis.....	20	
Whooping cough.....	21		Typhoid fever.....	12	
WASHINGTON.			Whooping cough.....	96	
Chicken pox.....	70		WYOMING.		
Diphtheria:			Diphtheria.....	4	
Spokane.....	14		Scarlet fever.....	1	
Scattering.....	21		Smallpox.....	1	
			Typhoid fever.....	1	
			Whooping cough.....	4	

Reports for Week Ended October 28, 1922.

ALABAMA.		Cases.	DISTRICT OF COLUMBIA.		Cases.
Dengue.....	55		Chicken pox.....	4	
Diphtheria.....	32		Diphtheria.....	21	
Influenza.....	12		Influenza.....	1	
Malaria.....	29		Measles.....	1	
Pellagra.....	1		Poliomyelitis.....	1	
Scarlet fever.....	14		Scarlet fever.....	13	
Tuberculosis.....	10		Tuberculosis.....	19	
Typhoid fever.....	10		Typhoid fever.....	4	
Whooping cough.....	6		Whooping cough.....	7	

¹Deaths.

KENTUCKY.		Cases.	MAINE—continued.		Cases.
Chicken pox.....		4	Diphtheria.....		12
Diphtheria:			German measles.....		2
Garrard County.....		8	Measles.....		2
Jefferson County.....		32	Mumps.....		14
Scattering.....		58	Pneumonia.....		6
Dysentery.....		2	Polio-myelitis.....		1
Influenza.....		6	Scarlet fever.....		31
Measles.....		3	Tuberculosis.....		6
Pneumonia.....		8	Typhoid fever.....		15
Scarlet fever.....		26	Whooping cough.....		45
Septic sore throat.....		4			
Smallpox.....		1	NORTH DAKOTA. ¹		
Tonsillitis.....		1	Chicken pox.....		9
Trachoma.....		2	Diphtheria.....		28
Tuberculosis:			Scarlet fever.....		32
Jefferson County.....		12	Smallpox.....		24
Lawrence County.....		1	Typhoid fever.....		10
Typhoid fever.....		26	Whooping cough.....		10
Whooping cough.....		10			
MAINE.			WYOMING.		
Cerebrospinal meningitis.....		1	Measles.....		1
Chicken pox.....		10	Smallpox.....		1
			Typhoid fever.....		6

SUMMARY OF CASES REPORTED MONTHLY BY STATES.

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State.	Cerebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Pellagra.	Polio-myelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
<i>September, 1922.</i>										
Alabama.....	1	240	93	173	2	4	3	114	.....	132
Hawaii.....	2	18	15	.....	33	.....	1	2	.....	11
Maine.....	41	5	.....	5	.....	.....	1	86	.....	30
Ohio.....	2	998	8	11	114	.....	11	714	42	439

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922.

CEREBROSPINAL MENINGITIS.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Oct. 21, 1922		City.	Median for previous years.	Week ended Oct. 21, 1922	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Missouri:			
Montgomery.....	0	.....	1	St. Louis.....	1	2	.....
California:				New York:			
Long Beach.....	0	.....	1	New York.....	2	3	2
San Francisco.....	0	1	.....	Ohio:			
Connecticut:				Cincinnati.....	0	1	.....
New London.....	0	1	.....	Pennsylvania:			
Georgia:				Philadelphia....	0	1	1
Savannah.....	0	1	1	Rhode Island:			
Michigan:				Providence.....	0	1	.....
Detroit.....	1	1	.....	Texas:			
Saginaw.....	1	1	.....	Dallas.....	0	.....	1
Minnesota:				Washington:			
St. Paul.....	0	.....	1	Seattle.....	0	1	.....

¹ Reports for North Dakota published in Public Health Reports Oct. 27, 1922, p. 2700, and Nov. 3, 1922, p. 2732, were for weeks ended Oct. 14 and 21, respectively.

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922—Continued.

DENGUE.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Florida:			South Carolina:		
Tampa.....	6		Charleston.....	32	
Georgia:			Columbia.....	61	
Albany.....	14				
Macon.....	500				

DIPHTHERIA.

See p. 2820; also Current State summaries, p. 2810; and Monthly summaries by States, p. 2814.

INFLUENZA.

City.	Cases.		Deaths, week ended Oct. 21, 1922.	City.	Cases.		Deaths week ended Oct. 21, 1922.
	Week ended Oct. 22, 1921.	Week ended Oct. 21, 1922.			Week ended Oct. 22, 1921.	Week ended Oct. 21, 1922.	
Alabama:				Massachusetts—Cont.			
Birmingham.....			1	Saugus.....	1		
California:				Webster.....		4	
Los Angeles.....	1	4	1	Michigan:			
San Francisco.....	1	1		Detroit.....	2	1	
Stockton.....	1			Grand Rapids.....	2	1	
Colorado:				Muskegon.....		1	
Denver.....			1	Missouri:			
Connecticut:				Cape Girardeau.....	1		
Bridgeport.....	1			New Jersey:			
New Britain.....	2			New Brunswick.....	1		
District of Columbia:				Newark.....		6	
Washington.....	1			Trenton.....		2	
Florida:				New York:			
Tampa.....	5			Buffalo.....		1	
Georgia:				Cohoes.....		1	
Albany.....	1	2		New York.....	29	21	2
Atlanta.....	5	1		Rochester.....	1		
Illinois:				Saratoga Springs.....	3		
Chicago.....	12	7	4	Watertown.....		1	1
Danville.....	1	1		Ohio:			
Kentucky:				Cincinnati.....			1
Louisville.....		1		Cleveland.....			
Louisiana:				Cleveland Heights.....	1		
New Orleans.....	2	1	2	Columbus.....		1	
Maine:				Portsmouth.....	1		
Lewiston.....			1	Rhode Island:			
Portland.....		2		Providence.....	1		
Maryland:				South Dakota:			
Baltimore.....	4	6		Sioux Falls.....	2		
Cumberland.....		1		Tennessee:			
Massachusetts:				Nashville.....			1
Boston.....	2	1		Texas:			
Everett.....	1			Fort Worth.....	1	1	1
Fall River.....		1		Wisconsin:			
Haverhill.....	2			Kenosha.....	1	1	
Lawrence.....	2						

MALARIA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			Massachusetts:		
Mobile.....	2		Boston.....	2	
Arkansas:			Pittsfield.....	1	
Little Rock.....	1		Michigan:		
California:			Saginaw.....	1	
Sacramento.....	1		North Carolina:		
San Francisco.....	1		Durham.....		1
Connecticut:			Ohio:		
Hartford.....	2		Akron.....	4	
Florida:			South Carolina:		
Tampa.....	3		Charleston.....		2
Georgia:			Tennessee:		
Augusta.....	3	2	Memphis.....	20	1
Savannah.....	5	1	Texas:		
			Beaumont.....		1
			Dallas.....		1

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922—Continued.

MEASLES.

See p. 2820; also Current State summaries, p. 2810; and Monthly summaries by States, p. 2814.

PELLAGRA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Georgia:			South Carolina:		
Brunswick.....	1	1	Charleston.....		2
Massachusetts:			Virginia:		
Boston.....	1		Norfolk.....		1
Michigan:					
Detroit.....	1				

PNEUMONIA (ALL FORMS).

Alabama:			Louisiana:		
Birmingham.....		5	New Orleans.....	11	4
Montgomery.....		1	Maine:		
Arkansas:			Bath.....		2
Hot Springs.....		1	Portland.....		3
California:			Waterville.....	1	
Los Angeles.....	28	14	Maryland:		
Oakland.....	6	3	Baltimore.....	29	13
Riverside.....	5	2	Cumberland.....		1
Sacramento.....	1	1	Massachusetts:		
San Bernardino.....	1		Adams.....	1	
San Diego.....	1		Belmont.....	1	
San Francisco.....		7	Beverly.....	1	
Santa Ana.....	1		Boston.....		15
Stockton.....		1	Brookline.....	1	
Colorado:			Cambridge.....	2	1
Colorado Springs.....		1	Chelsea.....		1
Denver.....		8	Chicopee.....		1
Pueblo.....		2	Danvers.....		1
Connecticut:			Dedham.....	1	
Bridgeport.....	4	2	East Hampton.....	2	
Bristol.....		1	Everett.....	1	
Hartford.....	5		Fall River.....		1
Manchester.....	1		Gardner.....		1
New Haven.....		5	Haverhill.....	1	
New London.....		1	Lawrence.....	1	
District of Columbia:			Leominster.....	1	
Washington.....		8	Lowell.....		3
Florida:			Lynn.....	2	1
Tampa.....		2	Medford.....	1	1
Georgia:			Methuen.....	1	
Atlanta.....		3	New Bedford.....		2
Augusta.....		1	Newburyport.....		1
Brunswick.....		1	North Adams.....		1
Illinois:			Quincy.....	4	1
Alton.....	1		Salem.....		2
Chicago.....	131	43	Somerville.....		1
Cicero.....	1		Springfield.....	3	2
Danville.....		2	Taunton.....		1
Decatur.....	2	1	Winthrop.....	3	1
Elgin.....		3	Worcester.....		2
Evanston.....			Michigan:		
Freeport.....	2	1	Ann Arbor.....	2	1
La Salle.....	2		Battle Creek.....	4	1
Oak Park.....		1	Detroit.....	29	15
Peoria.....		4	Flint.....	1	
Quincy.....		1	Grand Rapids.....	5	
Springfield.....	1		Hamtramck.....		3
Indiana:			Highland Park.....	2	
Fort Wayne.....		1	Kalamazoo.....	2	1
Gary.....		2	Marquette.....	1	
Indianapolis.....		9	Muskegon.....	2	1
Iowa:			Port Huron.....	1	
Burlington.....	1		Saginaw.....		1
Council Bluffs.....		1	Minnesota:		
Kansas:			Duluth.....		2
Kansas City.....	2		Minneapolis.....		5
Parsons.....		1	Rochester.....		1
Topeka.....	1		St. Paul.....		3
Wichita.....	2	1	Missouri:		
Kentucky:			Kansas City.....		7
Louisville.....		3	Montana:		
Owensboro.....	2		Great Falls.....		1

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Nebraska:			Ohio—Continued.		
Lincoln.....		2	Canton.....		2
Omaha.....		6	Cincinnati.....		4
New Hampshire:			Cleveland.....	20	9
Berlin.....		1	Columbus.....		1
New Jersey:			Dayton.....	1	
Bloomfield.....	1		East Cleveland.....		1
Elizabeth.....		2	Middletown.....		1
Garfield.....	3		Newark.....		2
Harrison.....	1		Springfield.....		1
Hoboken.....		2	Toledo.....		2
Jersey City.....	3		Youngstown.....		4
Montclair.....		1	Oklahoma:		
Morristown.....		1	Oklahoma.....		2
Newark.....	16	10	Oregon:		
Orange.....	2	1	Portland.....		3
Passaic.....	2	1	Pennsylvania:		
Paterson.....	1		Philadelphia.....	33	23
Trenton.....	6	2	Rhode Island:		
West Hoboken.....		1	Pawtucket.....		2
West New York.....		1	Providence.....		2
New York:			South Carolina:		
Albany.....	9		Charleston.....		3
Auburn.....		1	Greenville.....	1	
Buffalo.....	7	6	Tennessee:		
Hudson.....	1		Memphis.....		6
Jamestown.....		1	Nashville.....		2
Lackawanna.....	1		Texas:		
Middletown.....		1	Beaumont.....		1
New York.....	172	94	Dallas.....		2
Niagara Falls.....	1		El Paso.....		3
Port Chester.....	1		Fort Worth.....		1
Poughkeepsie.....		2	Galveston.....		2
Rochester.....	11	2	Waco.....		1
Rome.....	1		Utah:		
Schenectady.....	1		Salt Lake City.....		1
Syracuse.....	6	3	Virginia:		
Troy.....		3	Norfolk.....		2
Watertown.....	1		Richmond.....		3
White Plains.....	1		Roanoke.....		2
Yonkers.....		1	West Virginia:		
North Carolina:			Bluefield.....		1
Raleigh.....		2	Charleston.....		1
Winston-Salem.....		1	Wheeling.....		1
Ohio:			Wisconsin:		
Akron.....	3		Milwaukee.....	6	
Barberton.....		1	Racine.....		3

POLIOMYELITIS (INFANTILE PARALYSIS).

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Oct. 21, 1922.		City.	Median for previous years.	Week ended Oct. 21, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
California:				New York:			
San Diego.....	0	1		Auburn.....	0	1	
Connecticut:				New York.....	5	7	2
New Haven.....	0		1	Poughkeepsie.....	0	1	
Illinois:				Syracuse.....	0	3	2
Chicago.....	4	5		Watertown.....	0	1	
Massachusetts:				White Plains.....	0	1	
Boston.....	1	2		Yonkers.....	0	1	
Braintree.....	0	1		Ohio:			
New Bedford.....	0	1		Cincinnati.....	0	1	
Missouri:				Cleveland.....	1	1	
Joplin.....	0	1		Pennsylvania:			
New Jersey:				Erie.....	0	1	
Elizabeth.....	0	1		West Virginia:			
West New York.....	0	1		Huntington.....			1

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922—Continued.

RABIES IN ANIMALS.

City.	Cases.	City.	Cases.
Alabama:		Kentucky:	
Tuscaloosa.....	2	Louisville.....	2
California:		Massachusetts:	
Los Angeles.....	6	Medford.....	1
Kansas:		Missouri:	
Parsons.....	1	Kansas City.....	2

RABIES IN MAN.

City.	Cases.	Deaths.
California:		
Los Angeles.....		1

SCARLET FEVER.

See p. 2820; also Current State summaries, p. 2810, and Monthly summaries by States, p. 2814.

SMALLPOX.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Oct. 21, 1922.		City.	Median for previous years.	Week ended Oct. 21, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
Colorado:				Missouri:			
Denver.....	5	74	4	Joplin.....	0	1	
Georgia:				Montana:			
Augusta.....		1		Great Falls.....	1	1	
Illinois:				Oregon:			
Freeport.....	0	1		Portland.....	1	10	
Iowa:				Texas:			
Sioux City.....	1	1		Dallas.....	0	1	
Michigan:				Utah:			
Ann Arbor.....	0	1		Salt Lake City.....	3	1	
Flint.....	0	1		Washington:			
Minnesota:				Spokane.....	6	1	
Duluth.....	0	2		Wisconsin:			
Minneapolis.....	3	1		Ashland.....	0	4	
St. Paul.....	2	1		Superior.....	0	10	

TETANUS.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Florida:			Minnesota:		
Tampa.....		1	Fairbault.....		1
Georgia:			Missouri:		
Savannah.....	1	1	St. Louis.....	1	1
Illinois:			New Jersey:		
Chicago.....	1		Garfield.....	1	
Massachusetts:			New York:		
Boston.....	1	1	New York.....		1
Lowell.....	1	1	Texas:		
Michigan:			Fort Worth.....	1	1
Detroit.....		1			

TUBERCULOSIS.

See p. 2820; also Current State summaries, p. 2810.

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922—Continued.

TYPHOID FEVER.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for pre- vious years.	Week ended Oct. 21, 1922.		City.	Median for pre- vious years.	Week ended Oct. 21, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				New Jersey:			
Birmingham.....	1	2		Atlantic City.....	1	1	
Montgomery.....	0	1		Newark.....	1	10	
Tuscaloosa.....	0	1		Passaic.....	0	1	
California:				Perth Amboy.....	0	1	
Long Beach.....	0	3		New Mexico:			
Los Angeles.....	3	7		Albuquerque.....	1	2	
Oakland.....	0	1		New York:			
Riverside.....	0	1		Albany.....	1	2	
Sacramento.....	0	1		Buffalo.....	4	5	
San Francisco.....	2	2	2	Hudson.....	0	2	
Santa Ana.....		1		Ithaca.....	0	1	
Colorado:				Jamestown.....	0	1	
Denver.....	3	2		New York.....	32	25	7
Pueblo.....	0	2		Niagara Falls.....	0	1	
Connecticut:				Olean.....	0	2	
Bridgeport.....	0	4		Rochester.....	2	1	
Bristol.....	0	1		Syracuse.....	1	2	
Hartford.....	0	1		Troy.....	0	1	
New Haven.....	2	2	1	Watertown.....	2	1	1
District of Columbia:				North Carolina:			
Washington.....	6	2		Winston-Salem.....	0		1
Georgia:				Ohio:			
Atlanta.....	2		1	Ashtabula.....	0	1	
Macon.....	0	2		Barberton.....	0	1	
Rome.....	1	1		Canton.....	0	1	1
Savannah.....	2	1		Cincinnati.....	1	1	
Illinois:				Cleveland.....	4	7	
Chicago.....	13	7	3	Coshocton.....	0	1	
Springfield.....	1	1		Lorain.....	0	1	1
Indiana:				Newark.....	0	2	
Anderson.....	0	1		Salem.....	0	2	
Fort Wayne.....	0	2		Oregon:			
Hammond.....	0	1		Portland.....	2	5	
Indianapolis.....	4	1		Pennsylvania:			
La Fayette.....	0	1		Chester.....	0	2	
Muncie.....	1	1		New Castle.....	1	2	
Iowa:				Norristown.....	0	1	
Muscatine.....	0	1		Philadelphia.....	14	19	2
Waterloo.....	1	2		Pittsburgh.....	3	9	
Kansas:				West Chester.....	0	3	
Kansas City.....	1	1		York.....	1	2	
Kentucky:				Rhode Island:			
Covington.....	0	1		Providence.....	1	1	
Louisville.....	3	2		South Dakota:			
Louisiana:				Sioux Falls.....	0	1	
New Orleans.....	4	1	1	Tennessee:			
Maryland:				Knoxville.....	2	2	2
Baltimore.....	11	12	1	Memphis.....	1	2	
Massachusetts:				Texas:			
Boston.....	5	4		Dallas.....	2	1	1
Lowell.....	1	1		El Paso.....	2	11	
Malden.....	0			Utah:			
Somerville.....	1	2	1	Salt Lake City.....	1	4	
Worcester.....	1		1	Virginia:			
Michigan:				Norfolk.....	1	1	
Detroit.....	7	5	4	Petersburg.....	0	3	1
Highland Park.....	0	1		Richmond.....	1	1	
Kalamazoo.....	1	3		Washington:			
Muskegon.....	0	3		Aberdeen.....	0	2	
Minnesota:				Seattle.....	1	1	
Duluth.....	0	1		Tacoma.....	0	1	
Minneapolis.....	3	2		Walla Walla.....	1	4	
St. Paul.....	1	1		West Virginia:			
Missouri:				Bluefield.....	2	5	1
Independence.....	0		1	Huntington.....	0		1
St. Louis.....	8	3		Morgantown.....	0		
Montana:				Moundsville.....	0	2	
Billings.....	0	1		Wisconsin:			
Missoula.....	0	2		Green Bay.....	0	2	
New Hampshire:				Milwaukee.....	1	3	
Keene.....	0	1					

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City.	Population Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alabama:										
Birmingham.....	178,806	44	4	1	1		3		8	3
Mobile.....	60,777	10	1				1			1
Montgomery.....	43,464	9	2				2			
Arkansas:										
Hot Springs.....	11,695	5								
Little Rock.....	65,142		5				3		4	
California:										
Alameda.....	28,806	3					4		1	
Eureka.....	12,923	5					2			1
Glendale.....	13,536	7								2
Long Beach.....	55,593	16	2							1
Los Angeles.....	576,673	188	49	2	2		15		81	31
Oakland.....	216,261	39	20	1	2		9		8	4
Pasadena.....	45,354	14								1
Richmond.....	16,843	6								
Riverside.....	19,341	8	4	1					1	1
Sacramento.....	65,908	24	11	1			9			2
San Bernardino.....	18,721	9	1				1		1	4
San Diego.....	74,683	28	14	2			4		8	
San Francisco.....	506,676	142	29		3		6		22	13
Santa Ana.....	15,485	6	1				1			
Santa Barbara.....	19,441	2								
Santa Cruz.....	10,917	5								
Stockton.....	40,290	7	3				3			2
Vallejo.....	21,107	1							1	
Colorado:										
Colorado Springs.....	30,105	13					6		2	1
Denver.....	256,491	77	67	4			15			12
Pueblo.....	43,050	9	1						2	1
Connecticut:										
Bridgeport.....	143,555	29	7		3		3		6	1
Bristol.....	20,620	4			3		2		2	
Derby.....	11,238	3	1		4					
Fairfield (town).....	11,475	2								1
Hartford.....	138,036	23	5				3		1	
Manchester (town).....	18,370	2								
Milford (town).....	10,193	2							1	
New Haven.....	162,537	37	3		11		1		10	3
New London.....	25,688	6	3						1	
Stonington (town).....	10,236	6	2							
District of Columbia:										
Washington.....	437,571	113	13				13		18	7
Florida:										
Tampa.....	51,608	15	3						3	1
Georgia:										
Albany.....	11,555						1			
Atlanta.....	200,616	61	16	3	1		8		2	1
Augusta.....	52,548	32	7	1						4
Brunswick.....	14,413	4					1		1	1
Macon.....	52,995		3							
Rome.....	13,252		8				3			
Savannah.....	83,252	30	3							
Idaho:										
Boise.....	21,393	7								
Illinois:										
Alton.....	24,682	7	6							
Aurora.....	36,397	12	9	1			1		4	1
Bloomington.....	28,725	4	1	1			7		3	
Centralia.....	12,491	2					2			
Chicago.....	2,701,705	528	166	13	42	1	78	3	277	26
Cicero.....	44,995	10	10		1		2			1
Danville.....	33,776	7	1	1			1		2	
Decatur.....	43,818	12	4				2			
East St. Louis.....	66,767	19	5	1					1	
Elgin.....	27,454	9	3	1						
Evanston.....	37,234	8					2			
Forest Park.....	10,768		1				2			
Freeport.....	19,669	8	3		1		2			
Galesburg.....	23,834	10								
Kewanee.....	16,026	7		1			1			
La Salle.....	13,050	3	2	1	1		2			
Mattoon.....	13,552	0	3							

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.		
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
Illinois—Continued.											
Oak Park.....	39,858	6	3				2		1		
Pekin.....	12,086		1				1				
Peoria.....	76,121	18	1				14				
Quincy.....	35,978	18									
Springfield.....	59,183	11	3				5				
Indiana:											
Anderson.....	29,767	6			1		1				
Crawfordsville.....	10,139	0					1				
East Chicago.....	35,967	7	1				2				
Fort Wayne.....	86,549	13	5				1				
Frankfort.....	11,585	2	3				5				
Gary.....	55,378	15	2								
Hammond.....	36,004	9	12	1			3				
Huntington.....	14,000	6					2				
Indianapolis.....	314,194	98	60	2	1		9		1	3	
Kokomo.....	30,067	6	2								
La Fayette.....	22,486	11	3				1		1	1	
Logansport.....	21,626	1									
Mishawaka.....	15,195	3					10				
Muncie.....	36,524	3	3							1	
South Bend.....	70,983	12	3		5		8			2	
Terre Haute.....	66,083	21	17				1		1		
Iowa:											
Burlington.....	24,057	6	4				2				
Cedar Rapids.....	45,566						1				
Clinton.....	24,151		10								
Council Bluffs.....	36,162	15	1				6				
Davenport.....	56,727		12				2				
Dubuque.....	39,141		1				3				
Mason City.....	20,065	7	10				1				
Muscatine.....	16,068	5	4				2		1	1	
Ottumwa.....	23,033		5								
Sioux City.....	71,227		4				7				
Waterloo.....	36,230						4				
Kansas:											
Atchison.....	12,630		5				1				
Coffeyville.....	13,452	4									
Fort Scott.....	10,693	2	6	1							
Kansas City.....	101,177		12		4		6		1		
Lawrence.....	12,456	4									
Parsons.....	16,028	6	1				2	1	1		
Salina.....	15,035	4									
Topeka.....	50,022	7	18				6		2		
Wichita.....	72,217	19	15	1			10		1		
Kentucky:											
Covington.....	57,121	18	13	1			2			4	
Lexington.....	41,534	12	2				1			1	
Louisville.....	234,891	53	26	2	1		2		12	2	
Owensboro.....	17,424		5								
Louisiana:											
New Orleans.....	387,219	115	23	3	1		6		23	19	
Maine:											
Auburn.....	16,985	3					7		1		
Bangor.....	25,978						1		1		
Bath.....	14,731	5									
Biddeford.....	18,008	7					1	1			
Lewiston.....	31,791	6					2				
Portland.....	69,272	21	3							1	
Sanford (town).....	10,691	3								1	
Maryland:											
Baltimore.....	733,826	193	43	2	13		11		26	11	
Cumberland.....	29,837	12									
Massachusetts:											
Adams (town).....	12,967	1									
Amesbury (town).....	10,036	2								1	
Arlington (town).....	18,695	5	2						1		
Attleboro.....	19,731	2	3		4					1	
Belmont (town).....	10,749	1									
Beverly.....	22,561	5					1				
Boston.....	748,030	204	62	4	25		23		51	14	
Braintree (town).....	10,580						1				
Brookline.....	37,748	8	2						1		

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.		
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
Massachusetts—Continued.											
Cambridge	109,694	17			1		2		9		
Chelsea	43,184	13	7		8		8				
Chicopee	36,214	7					1		1		
Clinton	12,979	3									
Danvers	11,108		4								
Dedham	10,792	3					1				
Easthampton	11,261		5								
Everett	40,120	6					2		1		
Fall River	120,485	25	13	2	39		3		1	2	
Fitchburg	47,029		9	1			1				
Frammingham	17,033	2	7		1						
Gardner	16,971	6	6				2		1		
Greenfield	15,462	1									
Haverhill	53,884	12					2			1	
Lawrence	94,270	22	2		4				1		
Leominster	19,744	3					1		2		
Lowell	112,759	32	5		2		2		6	4	
Lynn	99,148	20	3		3		2		5		
Malden	49,103	13	2	2	1		1			1	
Medford	39,038	9	1		2		1		1		
Melrose	18,204	4					2				
Methuen	15,189	2	1				1		1		
New Bedford	121,217	24	6	1	1				4	3	
Newburyport	15,618	8	1		1						
Newton	46,054	5					2			1	
North Adams	22,282	3	1						1		
Northampton	21,951	11					2		1	1	
Peabody	19,552	0	5						2		
Pittsfield	41,763	9	4				7		1		
Quincy	47,876	10	3				1				
Salem	42,529	7	5	1	2		2		3		
Somerville	93,091	16	3		1		1		4		
Southbridge	14,245	1									
Springfield	129,614	35	6	1			5		5	2	
Taunton	37,137	5			2				1		
Wakefield	13,025	1							2		
Waltham	30,915	7	4								
Watertown	21,457	3	5						1		
Webster	13,258	1								1	
West Springfield	13,443	3									
Westfield	18,604	1	5								
Winthrop	15,455	1			1				1		
Woburn	16,574	3									
Worcester	179,754	39	9	3			14		3		
Michigan:											
Alpena	11,101		2				1				
Ann Arbor	19,516	13	2							1	
Battle Creek	36,164	1					4				
Benton Harbor	12,233	7	1				1				
Detroit	993,678	212	69	7	1		67	1	37	18	
Flint	91,599	20	11	2	4		13				
Grand Rapids	137,634	31	9	1			7		3		
Hamtramck	48,615	8		3						1	
Highland Park	46,499	8		1			4				
Holland	12,183		1				2				
Ironwood	15,739	3	1				8				
Kalamazoo	48,487	18	37	1			2		1		
Marquette	12,718	1									
Muskegon	36,570	9					1				
Pontiac	34,273	11	3		1						
Port Huron	25,944	10	3				2				
Saginaw	61,903	6	7				11		2		
Sault Ste. Marie	12,096	2					1				
Minnesota:											
Duluth	98,917	16	5				4			1	
Faribault	11,089	3					7				
Hibbing	15,089						15				
Minneapolis	380,582	82	34		1		36	2	34	1	
Rochester	13,722	17	10				1				
St. Cloud	15,873		1				2		1		
St. Paul	234,098	57	37	3	1		37	1	5	2	
Virginia	14,022		2		2		4				
Winona	19,143	6					1				

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Missouri:										
Independence.....	11,686	6								
Joplin.....	29,902		3				2			
Kansas City.....	324,410	62	35	1	1				7	6
St. Joseph.....	77,939	21	4				3			1
St. Louis.....	772,897	192	35	1	1		31	2	44	7
Springfield.....	39,631	12								2
Montana:										
Anaconda.....	11,668	1								
Billings.....	15,100	3	3	1			4			
Great Falls.....	24,121	5	2							1
Missoula.....	12,668	5								
Nebraska:										
Lincoln.....	54,948	13	4				2		1	
Omaha.....	191,601	46	20	2			3			
Nevada:										
Reno.....	12,016	2								
New Hampshire:										
Berlin.....	16,104	2								
Dover.....	13,029	0								
Kenneb.....	11,210	5								
New Jersey:										
Atlantic City.....	50,707	9	1		6				2	
Bayonne.....	76,754		6				2		3	
Belleville.....	15,660		2							
Bloomfield.....	22,019	3	1							
Clifton.....	26,470	1					1			
East Orange.....	50,710	7								1
Elizabeth.....	95,783		24		2		14		3	1
Englewood.....	11,627	5								2
Garfield.....	19,381	0	2		1				1	
Hackensack.....	17,667	3	1				1			
Harrison.....	15,721								1	
Hoboken.....	68,166	19	6						4	1
Jersey City.....	298,103		16		1		6		22	
Kearny.....	26,724	5	1		1				1	
Montclair.....	28,810	1					6		2	
Morristown.....	12,548	3								
Newark.....	414,524	73	12		17		9		17	5
Orange.....	33,268	5			2					1
Passaic.....	62,841	13	8	1	4		1		2	
Paterson.....	135,875		9		1		2		8	
Perth Amboy.....	41,707	2	3				3		2	
Phillipsburg.....	16,923	6	2							1
Plainfield.....	27,700	4	1							1
Summit.....	10,174						1			
Trenton.....	119,289	33	59	4			2		1	1
Union (town).....	20,651								1	
West Hoboken.....	40,074	8	1							
West New York.....	29,926	5								
West Orange.....	15,573	3	1		2		4			
New Mexico:										
Albuquerque.....	15,157	9	6	1			2		2	4
New York:										
Albany.....	113,344		6				2		4	
Auburn.....	36,192	6	3							
Buffalo.....	506,775	112	18	2	7		14		23	6
Cohoes.....	22,987	9	1							
Geneva.....	14,648	3								1
Hornell.....	15,025	3					4			
Hudson.....	11,745	3	3							
Ithaca.....	17,004	4	2						2	
Jaimestown.....	38,917	6					2			1
Lackawanna.....	17,918	2	2				6		1	1
Little Falls.....	13,029	1								
Lockport.....	21,308	6					3			
Middletown.....	18,420				2		3			
New York.....	5,620,048	1,139	133	5	31	2	62	5	1,284	167
Newburgh.....	30,366	8					1			
Niagara Falls.....	50,760	11	5	2			6			
Olean.....	20,506	5								
Pekskill.....	15,868	5	2							
Port Chester.....	16,573	3								

¹ Pulmonary tuberculosis only.

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.		
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
New York—Continued.											
Poughkeepsie.....	35,000	10	1	1			1		3		
Rochester.....	295,750	58	11		16		1		10		
Rome.....	26,341	7	2		1		7				
Saratoga Springs.....	13,181	4							1		
Schenectady.....	88,723	19			1		9				
Syracuse.....	171,717	44	23				10		6	4	
Troy.....	72,013	23	1		1				4		
Watertown.....	31,285	8			1		1				
White Plains.....	21,031	3			1				2		
Yonkers.....	100,176	13	1				1				
North Carolina:											
Durham.....	21,719	5	7						2		
Greensboro.....	15,861	6									
Raleigh.....	24,418	10	5	1			4				
Rocky Mount.....	12,742	2									
Wilmington.....	33,372	13	3		1		1		1		
Winston-Salem.....	48,395	22	7				4				
North Dakota:											
Fargo.....	21,961	0	1				2				
Grand Forks.....	14,010		1								
Ohio:											
Akron.....	208,435	34	11				19				
Ashtabula.....	22,082	5									
Barberton.....	18,811	2	2				1				
Bucyrus.....	10,425	0									
Cambridge.....	13,104	3									
Canton.....	87,091	15	8		1						
Chillicothe.....	15,831	3	2								
Cincinnati.....	401,247	119	18	1	1		10		13	11	
Cleveland.....	796,841	161	64	5	2		37	1	39	13	
Columbus.....	237,031	52	35	2	1		6		7	5	
Coshocton.....	10,847						1				
Dayton.....	152,559	41	9				7				
East Cleveland.....	27,292	2									
East Youngstown.....	11,237	3		1							
Findlay.....	17,021	5	1	1							
Fremont.....	12,468	2									
Hamilton.....	39,675	8	1				2			1	
Kenmore.....	12,683						4		1		
Lancaster.....	14,706	2									
Lima.....	41,326	13	3				4		2		
Lorain.....	37,295		2				4				
Mansfield.....	27,824	10	8				3			1	
Martins Ferry.....	11,634	3					2				
Middletown.....	23,594	7	2						2		
Newark.....	76,718	8	2				1			1	
Niles.....	13,080	0					2				
Norwood.....	24,966	4									
Piqua.....	15,044	7									
Salem.....	10,305	0	2								
Sandusky.....	22,897	5			1				1		
Springfield.....	60,840	23	4				3		1	1	
Steubenville.....	28,508	15	2						1		
Tiffin.....	14,375	3	8	2							
Toledo.....	243,164	66	21	1	26		13				
Youngstown.....	132,358	28	54	2			16		2		
Zanesville.....	29,569	11	2		3						
Oklahoma:											
Oklahoma.....	91,295	22	4				6		2		
Tulsa.....	72,075		6				8				
Oregon:											
Portland.....	258,288	59	6		1		3		5	3	
Pennsylvania:											
Allentown.....	73,502		10		4				1		
Altoona.....	60,331		5				3				
Ambridge.....	12,730		3		1		1				
Beaver Falls.....	12,802				4						
Berwick.....	12,181		2				1				
Bethlehem.....	50,358		5				2				
Bradford.....	20,879		2		24		1		1		
Bradford.....	15,525						1				
Bristol.....	10,273		3								

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.		
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
Pennsylvania—Continued.											
Butler	23,778		7				1				
Canonsburg	10,632				4						
Carbondale	18,640		1								
Carrick	10,504				4						
Chambersburg	13,171						3				
Charleroi	11,516		2				2				
Chester	58,030		1		1		1		1		
Connellsville	13,804		1				2				
Easton	33,813		2								
Erie	93,372		1		1		3		7		
Farrell	15,586		2				1				
Greensburg	15,033		1								
Harrisburg	75,917		4				1				
Jeannette	10,627		1				1				
Johnstown	67,327		4				1				
Lancaster	53,150		2				6		1		
Lebanon	24,643						2				
McKee's Rocks	16,713		14								
McKeesport	46,781		2				2		2		
Mahanoy City	15,599		1								
Monessen	18,179		2				2				
Mount Carmel	17,469		1								
Nanticoke	22,614		5								
New Castle	44,938		3				2				
New Kensington	11,987		1								
Norristown	32,319		1		1						
North Braddock	14,928		1				2				
Oil City	21,274						1				
Old Forge	12,237		1		1						
Philadelphia	1,823,779	446	60	3	310	2	30		83	52	
Phoenixville	10,484		2								
Pittsburgh	588,343		38		57		38		9		
Pottsville	21,876		1								
Reading	107,784		4		15				2		
Seranton	137,783		1				2		6		
Steelton	13,428		6								
Tamaqua	12,363		1								
Uniontown	15,692		1				1				
Warren	14,272						2				
Washington	21,480		3								
West Chester	11,717				2						
Wilkes-Barre	73,833		8								
Wilkesburg	24,403						3				
Williamsport	36,198		10								
Woodlawn	12,495		2		11						
York	47,512		6				2				
Rhode Island:											
Cranston	29,407	3									
Cumberland (town)	10,077	2	1				1				
Newport	30,255	7	2				2			2	
Pawtucket	64,248	12	1							1	
Providence	237,595	52	10		1		1			6	
South Carolina:											
Charleston	67,957	27	1				1		1	3	
Columbia	37,524		1				2		1		
Greenville	23,127	8	4				3			1	
South Dakota:											
Sioix Falls	25,202	7	9				1				
Tennessee:											
Chattanooga	57,895		6				8		1		
Knoxville	77,818						4		2	2	
Memphis	162,351	62	9	1			1	1	10	2	
Nashville	118,342	34	12	1					15	2	
Texas:											
Beaumont	40,422	12	2							1	
Corpus Christi	10,522	3							1		
Dallas	158,976	45	12				2		1	3	
El Paso	77,560	21	1		1		4		15	6	
Fort Worth	106,482	20	9				2				
Galveston	44,255	17					1			2	
Houston	138,276	41	5	1			1			4	
Waco	38,500	17	2	1			1				

CITY REPORTS FOR WEEK ENDED OCTOBER 21, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Utah:										
Salt Lake City	118,110	23	4				1		1	
Vermont:										
Barre	10,008						1			
Burlington	22,779	8	2							
Virginia:										
Alexandria	18,090	4								
Lynchburg	30,070	4	3				3			
Norfolk	115,777		9				1		3	4
Petersburg	31,012	3	10				3		2	
Richmond	171,667	41	43	1			19	2	9	5
Roanoke	50,842	16	11				4			1
Washington:										
Aberdeen	15,337		1							
Bellingham	25,585		1				4			
Everett	27,644		1							
Seattle	315,312		1		2		2			
Spokane	104,437		9		1		4			
Tacoma	96,965		1				2		21	
Walla Walla	15,503						1		2	
West Virginia:										
Bluefield	15,282	5	6							
Charleston	39,608	9	9				4			
Clarksburg	27,869	10	5				2	1	1	1
Fairmont	17,851		2				2			
Huntington	50,177	16	4	1						
Morgantown	12,127		2							
Moundsville	10,669	4	2				1			
Parkersburg	20,050	8	2				9			
Wheeling	56,208	14	6		15		1			3
Wisconsin:										
Appleton	19,561		2		1		1			
Ashland	11,331		3							
Beloit	21,284		1				13			
Eau Claire	20,906		1						2	
Fond du Lac	23,427	7							1	
Green Bay	31,017		3				1			
Janesville	18,293	5		1			2			
Kenosha	40,472	3	4				2		1	
La Crosse	30,421				1		1			
Madison	38,378						1			
Milwaukee	457,147		15		205		26		18	
Oshkosh	33,162	10	1				1			
Racine	58,593	9	1	1	12		5			
Sheboygan	30,955		4				1		1	
Superior	39,671	6								
Waukesha	12,558						1			
Wausau	18,661		3				1			
West Allis	13,745				2		2			
Wyoming:										
Cheyenne	13,829	3							1	

FOREIGN AND INSULAR.

CUBA.

Communicable Diseases—Habana.

Communicable diseases have been notified at Habana as follows:

Disease.	Oct. 11-20, 1922.		Remain- ing under treat- ment Oct. 20, 1922.	Disease.	Oct. 11-20, 1922.		Remain- ing under treat- ment Oct. 20, 1922.
	New cases.	Deaths.			New cases.	Deaths.	
Chicken pox.....	3	.....	5	Measles.....	1	.....	1
Diphtheria.....	3	.....	2	Paratyphoid fever.....	2	.....	4
Leprosy.....	1	1	10	Scarlet fever.....	3	.....	3
Malaria.....	28	.....	a 48	Typhoid fever.....	55	5	b 76

a From the interior, 24; from abroad, 1.

b From the interior, 13.

GUATEMALA.

Quarantine Against Tampico and Vera Cruz.

Under date of October 2, 1922, quarantine on account of yellow fever was declared in force by the government of Guatemala against arrivals from Tampico and Vera Cruz, Mexico. In the case of persons, an additional quarantine detention of three days at the port of landing in Guatemala, before proceeding to the interior, was imposed.

HAWAII.

Plague—Honokaa.

A fatal case of plague, occurring in a Japanese, was notified, October 5, 1922, at Honokaa, Hawaii, and reported positive October 12, 1922. The case occurred at Honokaa Mill, in a member of a family of Japanese in which a fatal case of plague was reported August 24, 1922.

ITALY.

Plague—Vicinity of Naples.

The occurrence of two cases of plague was reported, September 10 and 16, 1922, at Torre Annunziata, a suburb of Naples, Italy.

JAMAICA.**"Alastrim."**

During the three weeks ended October 7, 1922, 63 cases of "alastrim" were reported in the Island of Jamaica. Of these, 37 cases were reported during the week ended October 7, 1922.

Typhoid Fever—Kingston and Vicinity.

During the same period 3 cases of typhoid fever were reported in Kingston and 86 cases in the surrounding country.

POLAND.**Communicable Diseases—August 6-19, 1922.**

Communicable diseases have been reported in Poland, including Polish Upper Silesia and Vilna, but exclusive of Minsk, as follows:

Disease.	New cases.	Deaths.	Locality of highest proportional mortality.
<i>Aug. 6-12, 1922.</i>			
Cerebrospinal meningitis.....	11	2	District of Lwow; city of Warsaw.
Cholera.....	32	2	District of Volhynia.
Diphtheria.....	49	1	District of Warsaw.
Measles.....	206	8	Do.
Scarlet fever.....	234	32	District of Stanislawow.
Smallpox.....	21	9	Do.
Tuberculosis.....	70	170	District of Lwow.
Typhoid fever.....	371	15	Do.
Typhus fever.....	176	11	District of Kielce.
Typhus fever, recurrent.....	340	10	District of Nowogrodek.
Whooping cough.....	367	14	District of Lwow.
<i>Aug. 13-19, 1922.</i>			
Cerebrospinal meningitis.....	13	5	District of Lodz.
Cholera.....	6	4	District of Nowogrodek.
Diphtheria.....	53	11	City of Warsaw.
Measles.....	145	7	Do.
Scarlet fever.....	238	28	District of Lwow.
Smallpox.....	20	.....	.....
Tuberculosis.....	97	155	City of Warsaw.
Typhoid fever.....	436	25	District of Lodz.
Typhus fever.....	158	14	Districts of Stanislawow and Lwow.
Typhus fever, recurrent.....	355	5	City of Warsaw.
Whooping cough.....	330	12	District of Lwow.

Anthrax.

During the week ended August 19, 1922, five cases of anthrax, with two deaths, were reported in Poland in the city of Warsaw and the district of Stanislawow.

Dysentery.

During the two weeks ended August 19, 1922, 2,660 cases of dysentery, with 285 deaths, were reported, occurring in the district of Stanislawow.

UNION OF SOUTH AFRICA.

Typhus Fever Outbreak—Vicinity of Kimberley.

Under date of September 28, 1922, a serious outbreak of typhus fever was reported in the diamond fields in the vicinity of Kimberley, Cape Province, occurring among natives. Twenty deaths from the disease were reported at Gong-Gong, and about 12 deaths in the native locations at Winter's Rush and Longlands. An outbreak was also reported at Delpont.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.

Reports Received During Week Ended November 10, 1922.¹

The reports contained in the following tables must not be considered as complete or final, either as regards the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Antung.....	Sept. 27-Oct. 1.....			Prevalent in Chinese city and in settlements along Yalu River.
Manchuria—				
Dairen.....	Sept. 18-24.....	3	2	
Shanghai.....	Sept. 18-Oct. 1.....	1	2	Case, foreign; deaths, Chinese.
India.....				Aug. 20-26, 1922: Cases, 1,689; deaths, 1,086.
Calcutta.....	Sept. 10-16.....	4	3	
Philippine Islands:				
Province—				
Cagayan.....	Aug. 13-19.....	2	2	
Pangasinan.....	Aug. 27-Sept. 2.....	2		
Union.....	Aug. 27-Sept. 3.....	1		
Poland.....				Aug. 6-19, 1922: Cases, 38; deaths, 6. Exclusive of district of Minsk.
Siam:				
Bangkok.....	Aug. 13-26.....	3		
On vessel:				
.....	Sept. 18-24.....	2	1	At Dairen, Manchuria, China. Name and origin of vessel not stated.

PLAGUE.

Brazil:				
Porto Alegre.....	Sept. 24-30.....		2	
Ceylon:				
Colombo.....	Sept. 10-23.....	2	2	Two plague rats.
China:				
Hongkong.....	Sept. 10-16.....	5		
Egypt:				
City—				
Port Said.....	Oct. 5.....	1		
Province—				
Minieh.....	Sept. 29-30.....	1	1	
Hawaii:				
Honokaa.....	Oct. 5.....	1	1	Reported positive, Oct. 12, 1922. At Honokaa Mill, in Japanese girl; family in which fatal case was reported Aug. 24, 1922.
India.....				Aug. 20-26, 1922: Cases, 889; deaths, 611.
Bombay.....	Aug. 27-Sept. 2.....	8	7	
Karachi.....	Sept. 24-30.....	2	1	
Madras Presidency.....	do.....	251	154	
Rangoon.....	Sept. 3-9.....	22	20	
Italy:				
Naples.....	Sept. 10-16.....	2		At Torre Annunziata, suburb.
Java.....				Aug. 1-31, 1922: Cases, 298; deaths, 224. In 5 provinces.

¹ From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**Reports Received During Week Ended November 10, 1922—Continued.****PLAGUE—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
Madagascar: Tamatave.....	Aug. 18.....	.....	1	Aug. 7-19, 1922: Two cases. (Public Health Reports, Oct. 27, 1922, p. 2721.)
Mauritius Island.....	.....	.....	.....
Mesopotamia: Bagdad.....	Aug. 1-31.....	6	.....
Palestine: Jerusalem.....	Oct. 3-9.....	1	.....
Turkey: Constantinople.....	Oct. 1-7.....	.....	1	

SMALLPOX.

Arabia: Aden.....	Oct. 1-7.....	1	.....	Present.
Ceylon: Colombo.....	Sept. 10-23.....	8	.....
China: Hongkong.....	Sept. 10-16.....	1	.....
Manchuria— Dairen.....	Aug. 14-20.....	2	.....	From Preston. In vicinity, at Rancho Veloz.
Nanking.....	Sept. 10-23.....	.....	.....
Cuba: Antilla.....	Oct. 15-21.....	1	.....
Sagua la Grande.....	do.....	1	.....	Including vicinity.
Dominican Republic: Puerto Plata.....	Oct. 3-14.....	2	.....
San Pedro de Macoris.....	Oct. 1-7.....	13	.....
Egypt: Cairo.....	July 16-22.....	4	.....	Aug. 20-26, 1922: Cases, 826; deaths, 177.
Great Britain: London.....	Oct. 8-14.....	2	.....
India: Calcutta.....	Sept. 10-16.....	1	1	
Karachi.....	Sept. 24-30.....	2	1	Aug. 6-19, 1922: Cases, 41; deaths, 9. Exclusive of district of Minsk.
Madras.....	do.....	15	9	
Rangoon.....	Sept. 3-9.....	9	4	
Java: West Java— Batavia.....	Sept. 16-22.....	3	.....
Mesopotamia: Bagdad.....	Aug. 1-31.....	33	.....
Mexico: Mexico City.....	Sept. 9-13.....	19	.....
Panama Canal: Colon.....	Oct. 10-15.....	1	.....
Poland.....	.....	.....	.....
Switzerland: Zurich.....	Oct. 1-7.....	10	.....
Syria: Damascus.....	Sept. 24-30.....	6	.....
Turkey: Constantinople.....	Oct. 1-7.....	8	1	

TYPHUS FEVER.

Algeria: Oran.....	Oct. 1-10.....	1	1	
Austria: Vienna.....	Aug. 13-19.....	1	.....
Egypt: Cairo.....	July 16-29.....	9	9	
Port Said.....	July 23-29.....	1	1	
Germany: Coblenz.....	Oct. 8-14.....	1	.....
Mesopotamia: Bagdad.....	Aug. 1-31.....	5	.....

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received During Week Ended November 10, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Mexico:				
Mexico City.....	Sept. 10-23.....	45		Aug. 6-19, 1922: Cases, 334; deaths, 25. Recurrent typhus: Cases, 695; deaths, 15. Exclusive of district of Minsk.
Poland.....				
Turkey:				
Constantinople.....	Oct. 1-7.....	7		
Union of South Africa:				
Cape Province—				
Diamond Fields.....				Sept. 28, 1922: Outbreaks at native locations near Kimberley.
Delpont.....	Sept. 28.....			Outbreak.
Gong-Gong.....	do.....		20	
Winter's Rush.....	do.....		12	
Orange Free State.....	Sept. 10-16.....			Including Longlands. Outbreaks.

Reports Received from July 1 to November 3, 1922.¹

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Amoy.....	May 14-June 24...	1	4	Present. Stated to have been imported from Shanghai.
Newchwang.....	July 27.....			Present.
Pootung.....	Aug. 3.....			Aug. 1-Sept. 17, 1922: Cases, 4, foreign; deaths, 53. Chinese.
Shanghai.....	June 25-July 31...	198		July 29: Stated to be 250 cases in Chinese isolation hospital.
Tientsin.....	July 25-Aug. 19...	4	2	About 75 deaths reported for previous week.
Woosung.....	Aug. 3.....			
Greece:				
Athens.....	June 29.....	1	1	
Saloniki.....	June 7-17.....	30	11	At quarantine station; among passengers from vessel carrying Russian refugees.
India:				
Bombay.....	Apr. 23-June 17...	12	5	Feb. 26-June 24, 1922: Deaths, 33,979. June 25-Aug. 5, 1922: Deaths, 9,346. Aug. 6-19, 1922: Cases, 4,015; deaths, 2,506. (Report for week ended Feb. 25, 1922, not received.)
Do.....	July 2-Aug. 12...	5	4	
Calcutta.....	Apr. 23-June 24...	536	378	
Do.....	June 25-Sept. 9...	66	60	
Madras.....	May 21-June 17...	3	1	
Do.....	July 16-Sept. 23...	5	3	
Rangoon.....	May 7-June 24...	116	65	
Do.....	June 25-Sept. 2...	97	62	
Indo-China:				
Saigon.....	June 25-Aug. 19...	30	28	Including area of 100 square km.
Japan:				
Tokyo.....	Oct. 4.....			Epidemic.
Yokohama.....	Oct. 5.....			Present.
Philippine Islands:				
Manila.....	May 21-June 24...	8		
Do.....	June 25-Sept. 2...	14	3	One case, 1 death in nonresident, Aug. 27-Sept. 2, 1922.
Province—				
Bataan.....	June 4-10.....	1		
Batangas.....	May 26-June 24...	15	11	
Do.....	June 25-July 22...	7	4	
Bulacan.....	Apr. 30-May 6...	1	1	
Camarines Sur.....	Mar. 25-Apr. 1...	1	1	
Laguna.....	Apr. 16-22.....	1		
Marinduque.....	June 25-July 15...	6	6	
Mindoro.....	Apr. 23-29.....	1		

¹From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to November 3, 1922—Continued.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Philippine Islands—Continued.				
Province—Continued.				
Nueva Ecija.....	June 11-17.....	1	1	
Pampanga.....	Apr. 16-June 24....	6	5	
Do.....	June 25-July 8.....	1	1	
Pangasinan.....	June 18-24.....	3	1	
Rizal.....	Apr. 2-June 24.....	3	1	
Tarlac.....	May 21-June 10....	4	4	
Union.....	Aug. 6-Sept. 9.....	2	2	
Poland.....				July 9-Aug. 5, 1922: Cases, 61; deaths, 19.
Rovno.....	June 11-24.....	8	3	Repatriation station; Cases occurring among persons repatriated from Russia.
Do.....	June 25-Aug. 5....	33	10	
Volhynia.....	July 2-8.....	1	1	
Zamosc.....	Aug. 21.....		1	
Rumania:				
Bucharest.....	.....do.....	1		To July 31, 1922: Cases, 11; deaths, 6. First case in soldier from frontier on Dniester River.
Crangasi.....				Crangasi, a suburb of Bucharest.
Province—				
Bessarabia—				
Cobusea.....	July 24.....	1		Reported Aug. 11.
Codneshiti.....		3		Prefecture. Cholera reported Aug. 11 among troops in garrison.
Orhei.....				Reported July 29, 1922.
Rascantzi.....		11	1	
Siam:				
Bangkok.....	Apr. 30-June 17...	15	9	
Do.....	July 2-Sept. 2....	9	5	
Straits Settlements:				
Singapore.....	July 16-22.....	1	1	
Syria:				
Aleppo.....	May 27-June 3....			A few cases in interior.
Do.....	June 25-Sept. 2....			Present in interior.
On vessel:				
S. S. Chios.....	July 16.....	1		At Kavak Quarantine Station: Bosphorus, from Novorossysk, a Russian Black Sea port. Case occurred in a recognized carrier. Vessel carried refugees for Saloniki, Greece. Six bodies buried at sea; 12 cases landed at Kavak during stay.

PLAGUE.

Algeria:				
Algiers.....	Aug. 27.....	1		
Oran.....	Aug. 1-31.....	10	3	
Asia Minor:				
Smyrna.....	May 28-June 17...	3	1	
Do.....	June 30-Aug. 26...	8	1	District.
Australia:				
New South Wales—				
Sydney.....	June 1-15.....	2		Apr. 2-June 10, 1922: 19 plague-infected rats found.
Queensland—				
Brisbane.....	July 23-29.....			One plague rat.
Azores:				
Island of Fayal.....				Jan. 16-Feb. 8, 1922: Cases, 6; deaths, 4.
Horta.....	Feb. 2-8.....	4	2	
St. Michaels Island.....				Jan. 1-May 13, 1922: Cases, 93; deaths, 55. June 25-Oct. 19, 1922: Cases, 265; deaths, 23. In localities 3-9 miles from Ponta Delgada.
Ponta Delgada.....	Oct. 19.....	3		In vicinity, 180 cases.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to November 3, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Brazil:				
Bahia.....	June 11-17.....	1	.....	May 7-June 4, 1922: Rodent; occurring in one section of the city. Many dead rats found.
Do.....	Aug. 20-26.....	1	.....
Pernambuco.....	May 7-13.....	1	.....
Porto Alegre.....	July 30-Aug. 26.....	1	3	
British East Africa:				
Kenya Colony.....				Mar. 1-June 30, 1922: Cases, 371; deaths, 344. July 9-15, 1922: Deaths, 14.
Nairobi.....	Feb. 1-28.....	15	15	
Cape Verde Islands:				
St. Vincent.....	Sept. 4.....	.....	.....	Present.
Ceylon:				
Colombo.....	May 6-June 24.....	13	10	Plague rats, 5.
Do.....	June 25-Sept. 9.....	20	21	Plague rats, 10.
China:				
Amoy.....	May 7-June 24.....	.....	87	May 20, 1922: From 10 to 20 deaths reported daily. July 16-Aug. 12, 1922: Present; stated to be decreasing.
Do.....	June 25-July 15.....	.....	76	
Canton.....	May 1-June 30.....	28	23	
Foochow.....	May 7-June 10.....	5	4	June 17-24, 1922: Present. June 21: Mildly epidemic; 2 fatal cases in foreign physicians. Aug. 13-Sept. 9, 1922: Present.
Do.....	July 2-Aug. 12.....	3	1	
Hongkong.....	June 4-24.....	176	104	
Do.....	June 25-Sept. 9.....	141	101	
Ecuador:				
Guayaquil.....	June 1-15.....	.....	.....	Rats found infected, 16; examined, 3,400.
Do.....	July 1-Sept. 15.....	.....	.....	Rats examined, 21,609; found infected, 56.
Egypt:				
City—				Jan. 1-June 29, 1922: Cases, 280; deaths, 123. Jan. 1-Aug. 10, 1922: Cases, 439; deaths, 204. (Corrected report.)
Alexandria.....	June 1-28.....	21	6	Septicemic, 1.
Do.....	July 2-Sept. 9.....	18	7	Foreign cases, 2; deaths, 2.
Port Said.....	June 12-25.....	2	5	Aug. 5, 1922: One case imported from Mauritius on S. S. Dumbea.
Do.....	July 2-Sept. 24.....	30	22	
Suez.....	May 24-June 25.....	7	6	Septicemic, 1.
Do.....	July 10-Aug. 8.....	3	2	
Province—				
Assiout.....	May 30-June 23.....	14	8	
Do.....	July 11-Aug. 5.....	6	3	
Benisouef.....	May 26-June 30.....	19	7	
Do.....	July 2-Sept. 2.....	29	13	
Fayoum.....	June 3-29.....	8	4	
Do.....	July 2-20.....	13	3	
Gharbieh.....	May 26-June 30.....	37	13	
Do.....	July 2.....	3	.....
Menoufieh.....	July 20.....	1	1	
Minieh.....	June 2-29.....	24	7	
Do.....	July 14-Sept. 27.....	18	9	
Sinnuris (district).....	Sept. 3-9.....	1	.....
France:				
Paris.....	Aug. 11-18.....	4	.....
Greece:				
Patras.....	Apr. 24-June 25.....	5	3	
Piræus.....	Aug. 1-31.....	3	1	
Hawaii:				
Hamakua.....	June 30-July 4.....	1	1	At Kalopa Homesteads. Case Hawaiian.
Do.....	July 8.....	.....	.....	Hamakua Mill Co. One plague rat trapped; found positive, July 14, 1922.
Honokaa.....	Aug. 19-Sept. 10.....	.....	4	Japanese and Filipinos; bubonic and septicemic. Aug. 12-Sept. 13, 1922; 3 plague rats found.
Honokaa Mill.....	Aug. 24.....	1	1	Japanese; pneumonic.
Kalopa.....	July 13.....	1	1	Contact with case at Kalopa Homesteads, July 4.
Paauihau.....	June 30.....	.....	.....	One plague rat trapped at Paauihau Gulch, June 29; found positive June 30, 1922.
Paauiilo.....	July 7.....	.....	1	At Pohakea; Japanese. Sept. 25, 1922: One plague rat found at Hamakua Mill.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to November 3, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Hawaii—Continued.				
Pohakea.....	Aug. 1-16.....	2	2	Aug. 1, Japanese child; case reported positive for plague Aug. 6, 1922. Form, pneumonic. Aug. 16, 1 fatal case in Japanese.
Pohakuhaku.....	July 12.....	1	1	Hawaiian. Reported positive, July 19.
India.....				Apr. 23-June 24, 1922: Cases, 6,310; deaths, 4,812. June 25-Aug. 19, 1922: Cases, 4,023; deaths, 2,861.
Bombay.....	Apr. 23-June 24....	168	123	Surrounding country, July 2-8, 1922: Cases, 21; deaths, 16.
Do.....	June 25-Aug. 26....	41	31	
Calcutta.....	Apr. 23-June 24....	56	54	
Do.....	June 25-Aug. 19....	16	16	
Karachi.....	May 23-June 24....	59	55	
Do.....	June 25-Sept. 23....	4	4	
Madras Presidency.....	May 21-June 24....	74	36	
Do.....	June 25-Sept. 23....	1,395	909	
Rangoon.....	May 6-June 24....	175	161	
Do.....	June 25-Sept. 2....	370	335	
Indo-China:				
Saigon.....	Apr. 23-June 24....	30	21	
Do.....	June 25-Aug. 19....	10	7	Including area of 100 square kilometers.
Italy:				
Catania.....	June 17.....	1		
Naples.....	July 18-Aug. 23....	15		Occurring in suburbs, viz, at Torre Annunziata, July 18-Aug. 23, 14 cases; San Giovanni a Teduccio, July 25, 1 case.
Japan:				
Osaka.....	July 11-20.....	7	6	Reported as having occurred during past month: Cases, 9; deaths, 8.
Java.....				Month of April, 1922: Report of the 7 Provinces of Java: Cases, 413; deaths, 495. May 1-31, 1922: Cases, 293; deaths, 310; occurring in 6 Provinces. June 1-30, 1922: Cases, 222; deaths, 239; occurring in 5 Provinces. July 1-31, 1922: Cases, 20; deaths, 223; occurring in 5 Provinces.
East Java—				
Soerabaya.....	May 7-June 24.....	3	3	
Soerakarta—				
Keporen.....	May 20.....			Epidemic.
Madagascar:				
Tananarive Province—				
Anketrina.....	May 4.....		1	Native village: disease stated to have been present since about Apr. 27, 1922. (Name of locality corrected.)
Tamatave.....	June 26-July 2....	2	1	
Do.....	Aug. 21-Sept. 13....			Present. Aug. 17, 1922: 1 case. Aug. 21-27, 1922: 1 death.
Tananarive.....	May 29-June 18....	2	1	
Do.....	July 10-23.....	2	2	
Mauritius, Island.....				Oct. 19, 1922: 65 fatal cases reported.
Mesopotamia:				
Bagdad.....	Apr. 1-June 30....	268	188	
Do.....	July 1-31.....	23		
Mexico:				
Tampico.....				Sept. 24-30: 1 plague rat.
Vera Cruz.....				June 30, 1922: 1 plague rat.
Palestine:				
Jerusalem.....	July 4-Oct. 2....	44	2	In native quarter of Jaffa.
Peru.....				May 1-15, 1922: Cases, 26; deaths, 19. June 1-30, 1922: Cases, 87; deaths, 15. July 1-Aug. 31, 1922: Cases, 95; deaths, 51.
Callao.....				Jan. 1-June 30, 1922: Deaths, 13.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to November 3, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Philippine Islands:				
Manila.....	June 3.....	1	1	From S. S. Taisang from Amoy, China.
Do.....	Aug. 20-26.....	2		
Portugal:				
Lisbon.....	July 23-Sept. 2.....	4	5	
Portuguese West Africa:				
Angola—				
Loanda.....	Oct. 25.....			Present.
Guinea.....				Reported present Aug. 24, 1922.
Senegal:				
Dakar.....	June 1-30.....	1	1	
Do.....	July 1-31.....	2	2	
Siam:				
Bangkok.....	Apr. 30-June 3.....	4	3	
Do.....	July 2-Sept. 2.....	8	7	
Spain:				
Barcelona.....	Sept. 24-Oct. 19.....	6	6	Stated to be confined to factory in which disease first appeared.
Cartagena.....	Oct. 18.....	2		
Valencia.....	do.....	2		
Straits Settlements:				
Singapore.....	Apr. 30-June 24.....	8	9	
Do.....	July 9-Aug. 26.....	3	3	
Syria:				
Aleppo.....	Sept. 9-16.....		1	
Beirut.....	July 30.....	2		
Tunis:				
Tunis.....	June 30-Sept. 9.....	4	1	
Turkey:				
Constantinople.....	Aug. 20-Sept. 30.....	12	7	
Union of South Africa:				
Orange Free State—				
Grootkom Farm.....	May 7-13.....			One dead plague-infected rodent found. Locality adjoins Tru-cart's Berg Farm, on which plague-infected mouse was found preceding week.
Rendezvous Ry. Station	May 14-20.....			Plague-infected wild rodent found near.
On vessels:				
S. S. Ardeola.....	June 25-July 8.....			At Liverpool. Four plague-in-fected rats found dead. Vessel from Las Palmas, Canary Is-lands, June 26, 1922.
S. S. Dumbea.....	Aug. 5.....	1		At Suez, Egypt, from Island of Mauritius. Patient ill two days before arrival. Declared positive Aug. 6.
Greek vessel.....	July 19.....			At Messina, Italy. Cases on board. Vessel not allowed to enter.
S. S. Legie.....	July 29.....			At Hamburg, Germany. Plague rats found. Vessel from Buenos Aires, Argentina.
S. S. Southgate.....	May 30.....	1		At Thursday Island quarantine, Australia. Vessel left Calcutta May 2; Rangoon, May 9. Ves-sel badly rat-infested.
S. S. Taisang.....	June 1-3.....	1	1	At Manila, P. I., from Amoy, China. Patient landed at Ma-nila June 1, 1922. The Taisang was 2½ days en route direct from Amoy.

SMALLPOX.

Arabia:				
Aden.....	May 7-June 24.....	60	21	
Do.....	July 2-Sept. 30.....	48	24	
Argentina:				
Rosario.....	June 1-30.....		3	
Asia Minor:				
Smyrna.....	May 14-June 24.....	4		In district.
Do.....	June 25-Aug. 26.....	13		Do.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to November 3, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Bermuda:				
Hamilton.....	Sept. 3-30.....	3		
Bolivia:				
La Paz.....	Mar. 1-Apr. 30.....	97	16	
Brazil:				
Bahia.....	June 25-July 1.....	1	1	
Para.....	May 29-June 25.....	8		
Do.....	July 3-Sept. 17.....	141	2	Aug. 22-28, 1922: Cases, 16.
Rio de Janeiro.....	May 14-June 24.....	48	12	
Do.....	June 25-Sept. 23.....	136	28	
Sao Paulo.....	Apr. 10-June 11.....	3	10	
British East Africa:				
Kenya Colony.....				Apr. 1-June 30, 1922: Cases, 15.
Dar-es-Salaam.....	Apr. 16-June 10.....	26		July 9-15, 1922: Deaths, 5.
Do.....	July 16-Aug. 12.....	18	2	
Nairobi.....	Mar. 1-31.....	22	2	
Zanzibar.....	May 1-June 10.....	36	6	
Do.....	June 24-July 1.....	2		
Canada:				
Alberta—				
Calgary.....	June 18-24.....	1		
Manitoba—				
Winnipeg.....	May 6-June 17.....	3		
Do.....	Sept. 3-9.....	1		
New Brunswick—				
Kent County.....	June 25-July 1.....	2		
Madawaska County.....	June 4-17.....	6		
Do.....	Sept. 10-Oct. 7.....	2	1	
Ontario.....				Sept. 1-30, 1922: Cases, 19; deaths, 1.
Fort William and Port Arthur.....	Aug. 6-Sept. 23.....	3		
Hamilton.....	July 30-Aug. 12.....	2		
London.....	Aug. 26-Sept. 2.....	1		
North Bay.....	June 3-17.....	2		
Do.....	July 16-Aug. 12.....	3		
Ottawa.....	June 11-July 1.....	17		
Do.....	July 2-Oct. 21.....	16		
Toronto.....	June 18-Sept. 9.....	10		
Saskatchewan—				
Regina.....	Sept. 17-23.....	1		Imported.
Saskatoon.....	Aug. 20-26.....	1		
Ceylon:				
Colombo.....	May 14-20.....	1		
Do.....	July 16-Sept. 9.....	3		
Chile.....				
Concepcion.....	Mar. 14-June 20.....		71	Prevalent, July 3, 1922, throughout southern Provinces.
Do.....	June 27-Sept. 4.....		39	
Quillon.....				In Concepcion Province: Epidemic in May, 1922, with 60 reported cases. To June 5, epidemic.
Do.....	June 27-July 3.....			Epidemic.
San Patricio.....	May 16-22.....	13		
Talcahuano.....	May 22-June 24.....	33	19	May 16-22, 1922: Present.
Do.....	June 25-July 30.....	5	7	
Temuco.....				Province of Cautin; epidemic in May, 1922.
Vahparaiso.....	Mar. 26-June 19.....		115	Incomplete; several districts not reporting.
Do.....	June 25-July 30.....		46	
China:				
Amoy.....	May 7-20.....			Present. June 18-24, 1922: 1 death.
Do.....	July 16-Sept. 16.....			Present.
Antung.....	May 29-June 18.....	4		
Do.....	July 3-16.....	5		
Chungking.....	May 28-June 24.....			Do.
Do.....	June 25-Sept. 2.....			Do.
Foochow.....	May 14-20.....	1		Aug. 13-19, 1922: Present.
Do.....	Aug. 27-Sept. 9.....			Present.
Hankow.....	June 25-July 1.....	1		
Hongkong.....	May 14-June 24.....	41	32	
Do.....	July 16-Sept. 2.....	4	2	Aug. 13-26, 1922: Present.
Manchuria—				
Dairen.....	May 15-June 18.....	4	1	
Do.....	June 26-July 17.....	4	1	
Harbin.....	May 22-28.....	1		
Do.....	July 30-Aug. 5.....	1		
Mukden.....	June 18-24.....			Present.
Do.....	July 16-Sept. 23.....			Do.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to November 3, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
China—Continued.				
Nanking.....	May 7-June 24.....	1		Present.
Do.....	June 25-Sept. 9.....	1		Do.
Shanghai.....	May 22-28.....	1		Native.
Tientsin.....	May 14-20.....	1		Present.
Tsingtau.....	May 9-June 18.....	4	3	Including leased territory of Kia- ochow, Japanese population along Shantung Railway, and Japanese residents, Tsinan.
Do.....	June 26-July 30.....	5	3	Do.
Chosen (Korea):				
Chemulpo.....	May 1-31.....	1		
Fusan.....	May 1-June 30.....	147	60	
Do.....	July 1-31.....	13	9	
Seoul.....	May 1-June 30.....	26	5	
Do.....	July 1-31.....	23	8	
Cuba.....				July 1-Aug. 31, 1922: Cases, 77.
City—				
Antilla.....	June 18-24.....	1		Reported for Preston.
Do.....	Sept. 17-23.....	1		
Cienfuegos.....	June 24-July 1.....	1		
Habana.....	July 1-Aug. 31.....	10		
Santiago.....	June 1-30.....	3		
Do.....	Sept. 1-30.....	1		
Province—				
Habana.....	Aug. 20-31.....	1		
Matanzas.....	do.....	1		
Oriente.....	do.....	3		
Santa Clara.....	do.....	4		
Domenica.....	Aug. 5-Sept. 9.....			Present. Aug. 23, 1922: Epidemic. Island in Leeward Islands.
Dominican Republic:				
Puerto Plata.....	Sept. 12-25.....	6		
San Pedro de Macoris.....	May 21-June 24.....	167	2	City and country. (Corrected report.)
Do.....	June 25-Sept. 30.....	304	2	City and district. (Corrected report.)
Santo Domingo.....	June 4-24.....	3	9	Including vicinity.
Do.....	June 25-Oct. 7.....	3	5	July 30-Aug. 5, 1922: A few cases, city and vicinity.
Ecuador:				
Guayaquil.....	July 16-Sept. 15.....	8		
Milagro.....	Sept. 1-15.....	1		
Nobol.....	do.....	1		
Egypt:				
Alexandria.....	July 23-Aug. 12.....	2	2	
Cairo.....	Apr. 30-June 24.....	13	5	
Do.....	July 23-Aug. 5.....	2	1	
Port Said.....	May 7-June 24.....	3	1	
Do.....	July 23-29.....	1		
Finland.....	June 1-30.....	2		
Do.....	July 1-15.....	1		
Fiume.....	June 13-19.....	1		
Do.....	July 10-16.....	1		
France:				
Paris.....	June 1-10.....	1	1	
Great Britain:				
Halifax.....				Outbreak reported under date of June 17, 1922.
Huddersfield.....				Do.
Liverpool.....	Aug. 13-19.....	1		In port hospital.
London.....	July 30-Sept. 23.....	5	2	
Sheffield.....	May 28-June 17.....	5		
Southampton.....	June 18-24.....	2		
Greece:				
Saloniki.....	May 1-June 25.....	3	1	
Do.....	July 17-23.....		1	
Syra Island.....	May 26.....	12	5	
Haiti:				
Cape Haitien.....	June 11-17.....	1		Vicinity of Cape Haitien. Pres- ent.
Plaine du Nord.....	do.....			Feb. 26-Mar. 25, 1922: Deaths, 1,162 (date of report corrected.) Mar. 26-May 20, 1922: Deaths, 6,015. June 4-24: Cases, 2,813; deaths, 919. June 25-Aug 19, 1922: Cases, 6,821; deaths, 1,855.
India:				
Bombay.....	Apr. 23-June 24.....	38	17	
Do.....	July 2-15.....	4	2	
Calcutta.....	Apr. 23-June 24.....	84	67	
Do.....	June 25-Sept. 9.....	28	21	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to November 3, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
India—Continued.				
Karachi.....	May 23-June 24....	35	9	
Do.....	July 16-Sept. 9....	16	4	
Madras.....	May 14-June 24....	207	94	June 19-25, 1922: Cases, 30;
Do.....	July 2-Sept. 23....	468	213	deaths, 15.
Rangoon.....	May 7-June 24....	37	16	
Do.....	July 2-Sept. 2....	40	19	
Indo-China:				
Saigon.....	June 30-Aug. 19....	36	26	Including area of 100 square km.
Japan:				
Kobe.....	June 19-25....	2		
Taiwan Island.....	June 11-30....	26	3	
Do.....	July 22-Aug. 19....	27	4	
Yokohama.....	May 29-June 25....	4	2	
Do.....	June 25-July 20....	48	8	
Java:				
East Java—				
Sourabaya.....	Aug. 13-19....	2		
West Java—				
Batavia.....	Apr. 28-June 30....	20	3	City and Province.
Do.....	July 9-Sept. 15....	42	8	Province.
Luxemburg.....	June 15-30....	1	1	
Malta.....	May 1-June 15....	4		June 1-39, 1922: Cases, 2.
Mesopotamia:				
Bagdad.....	Apr. 1-June 30....	36	40	
Do.....	July 1-31....	38		
Mexico:				
Chihuahua.....	June 22-Sept. 17....		2	
Guadalajara.....	May 1-June 30....	13		
Do.....	July 1-31....	4	1	Estimated cases, 4 to 10.
Manzanillo.....	June 6-25....		1	Estimated.
Do.....	June 27-July 3....	6	4	Including municipalities in Federal District. Report June 11-17, not received.
Mexico City.....	May 21-June 24....	129		Including municipalities in Federal District.
Do.....	June 25-Sept. 8....	204		State of Sonora.
Nogales.....	July 22-Aug. 5....	26	3	
San Luis Potosi.....	July 23-Oct. 7....		12	
Torreón.....	July 1-31....		1	
Panama Canal.....				July 1-31, 1922: Cases, 4, of which
Colon.....	July 1-31....	2		1 nonresident and not locally
Panama.....	July 1-Aug. 15....	2		reported. July 28-Sept. 28,
				1922: Cases, 3; of these, non-
				resident, 2.
Persia:				
Teheran.....	Apr. 23-May 22....	2		
Peru:				
				May 1-15, 1922: Cases, 5; deaths,
				4. June 1-30, 1922: Cases, 16;
				deaths, 7; Aug. 1-31, 1922: Cases,
				23, deaths, 5.
Callao.....				Jan. 1-June 30, 1922: Deaths, 1.
Lima.....				Jan. 1-June 30, 1922: Deaths, 23.
Poland:				
				Mar. 26-June 24, 1922: Cases,
				1,210; deaths, 241.
Do.....				June 25-Aug. 5, 1922: Cases, 191;
				deaths, 40.
Portugal:				
Lisbon.....	May 29-June 25....	6	8	Corrected report.
Do.....	June 26-Sept. 30....	176	62	July 22-Aug. 5: Cases, 19;
Operto.....	Aug. 27-Sept. 2....	1		deaths, 4.
Portuguese East Africa:				
Lourenço Marques.....	July 23-29....	1		
Portuguese West Africa:				
Angola—				
Loanda.....	June 25-July 1....		1	
Russia:				
Estonia.....	May 1-June 30....	6		
Do.....	July 1-31....	1		
Lettonia.....	May 1-June 30....	51		
Do.....	July 1-Aug. 31....	20		
Senegal:				
Dakar.....	June 1-30....	4	4	
Spain:				
Barcelona.....	June 22-28....		1	
Do.....	June 29-Sept. 13....		3	
Bilbao.....	Aug. 1-Sept. 30....		5	
Cádiz.....	Aug. 1-30....		1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to November 3, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Spain—Continued.				
Corunna.....	June 11-17.....		1	
Huelva.....	Apr. 1-June 30.....		4	
Do.....	July 1-Aug. 31.....		2	
Seville.....	June 11-17.....		36	Week ended June 11, 1922: Many cases.
Do.....	June 18-Oct. 8.....		151	
Valencia.....	May 21-27.....	1		
Straits Settlements:				
Singapore.....	Apr. 30-June 5.....	11	2	
Do.....	July 30-Aug. 19.....	3	1	
Switzerland:				
Basel.....	May 28-June 3.....	1		
Do.....	Sept. 17-23.....	1		
Berne.....	May 14-20.....	1		
Do.....	July 9-Sept. 23.....	20		
Lucerne.....	July 1-31.....	1		
Zurich Canton.....				Aug. 1-31, 1922: Cases, 74.
Zurich.....	Apr. 23-June 12.....	9		
Do.....	June 25-Sept. 22.....	67		Aug. 1-31, 1922: Cases, 61.
Syria:				
Aleppo.....	June 4-24.....			Present.
Damascus.....	June 18-24.....		2	
Do.....	June 25-Sept. 16.....	15	2	
Tunis:				
Tunis.....	July 17-23.....	1		
Turkey:				
Constantinople.....	May 21-June 24.....	21	6	
Do.....	June 25-Sept. 30.....	41	11	
Union of South Africa.....				Apr. 1-June 30, 1922: Cases, 173; deaths, 12 (colored); white, cases, 36. July 1-31, 1922: Colored—cases, 171; deaths, 3. White—5 cases.
Cape Province.....				Apr. 1-June 30, 1922: Cases, 87; deaths, 3 (colored); white, 6 cases. July 1-31, 1922: Cases, 59; deaths, 2 (colored).
Do.....	Aug. 20-Sept. 9.....			Outbreaks.
Natal.....				Apr. 1-May 31, 1922: Cases, 20; deaths, 8 (colored); white, 20 cases. July 1-31, 1922: Cases, 5 (colored).
Orange Free State.....				May 1-31, 1922: Cases, 12; deaths, 1 (colored). July 1-31, 1922: 1 case (colored).
Do.....	Sept. 3-9.....			Outbreaks.
Southern Rhodesia.....	May 11-June 28.....	67	4	In natives, 3 cases.
Do.....	June 29-Aug. 23.....	35		
Transvaal.....				Apr. 1-June 30, 1922: Cases, 54 (colored); white, 10 cases. July 1-31, 1922: Colored—cases, 106; deaths, 1. White, 6 cases. Outbreaks.
Do.....	July 9-Sept. 2.....			
Johannesburg.....	May 1-31.....	1		
Virgin Islands:				
St. Thomas.....	June 5-18.....	1	1	At quarantine. From vessel from Dominican Republic.
Yugoslavia.....				Sept. 4-24, 1921: Cases, 11; deaths, 4.
Croatia-Slavonia—				
Zagreb.....	June 4-10.....	1		
Do.....	Aug. 6-12.....	1		
Serbia.....				Oct. 23-29, 1921: Cases, 5.
Belgrade.....	June 11-17.....	1		
Do.....	Aug. 14-Sept. 24.....	24	12	
On vessels:				
S. S. Changsha.....	May 11.....	1		At Hongkong, China. Case landed from vessel; patient, intending passenger. Vessel proceeded to Australian ports.
S. S. Comerie.....	do.....	1		At sea, en route to Durban, S. A., from Sydney, Australia. (Public Health Reports, June 23, 1922, p. 1555.)
Schr. Fancy Me.....	May 28.....			At St. Thomas, Virgin Islands. From San Pedro de Macoris, Dominican Republic. One case removed to quarantine June 5; died June 18.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to November 3, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
On vessels—Continued.				
S. S. Montoro.....	July 8.....	1	.....	At Darwin, Australia. Vessel left Singapore June 28 for Darwin via Java ports; Case, Chinese, developed July 4. Case landed at quarantine; vessel proceeded in quarantine to Sydney, via northern ports.
S. S. Shelley.....	Apr. 19.....	1	.....	At sea, en route from Hongkong. Vessel left Hongkong Apr. 17. Arrived Thursday Island quarantine, Australia, Apr. 28, 1922. Case, member of crew; type, confluent hemorrhagic.
S. S. St. Albans.....	May 18.....	1	.....	At Thursday Island quarantine, Australia. Case in person of Chinese steerage passenger. Vessel left Shimonoseki, Japan, for Melbourne via Hongkong and Manila. Left Thursday Island for Australian ports.

TYPHUS FEVER.

Algeria:				
Algiers.....	May 1-31.....	16	4	
Do.....	Aug. 1-31.....	2	1	
Oran.....	June 1-30.....	3	1	
Do.....	July 1-Aug. 10.....	.....	3	
Asia Minor:				
Smyrna.....	May 14-June 24.....	8	.....	City and district. (Corrected report.)
Do.....	June 25-Aug. 19.....	11	.....	District.
Australia:				
Brisbane.....	July 9-Aug. 12.....	2	.....
Austria:				
Vienna.....	May 7-June 10.....	3	1	
Do.....	July 2-15.....	2	1	
Bolivia:				
La Paz.....	Mar. 1-Apr. 30.....	15	8	
Bulgaria:				
Sofia.....	May 28-June 17.....	4	.....
Do.....	Sept. 24-30.....	1	1	
Chile:				
Concepcion.....	Apr. 11-May 29.....	.....	10	
Do.....	June 27-Sept. 4.....	.....	7	
Valparaiso.....	Apr. 2-22.....	.....	6	
Do.....	July 18-Sept. 30.....	.....	26	
China:				
Antung.....	May 15-21.....	1	.....
Do.....	July 10-Sept. 17.....	11	.....
Foochow.....	May 14-20.....	1	.....
Do.....	Aug. 6-12.....	4	.....
Hankow.....	July 9-15.....	1	1	
Manchuria—				
Harbin.....	May 8-June 11.....	4	.....
Do.....	June 26-Sept. 10.....	7	.....
Tsingtau.....	Sept. 11-18.....	.....	1	
Czechoslovakia:				
Prague.....	June 11-17.....	1	.....
Do.....	July 1-Aug. 26.....	2	1	
Tanzig (Free City).....	June 4-10.....	1	.....
Egypt:				
Alexandria.....	June 4-24.....	9	6	
Do.....	June 25-Sept. 23.....	26	14	July 22-29, 1922: 1 imported paratyphoid.
Cairo.....	Mar. 19-June 24.....	19	62	Relapsing fever, Mar. 26-Apr. 8, 1922; 1 case.
Do.....	June 25-Aug. 5.....	24	16	
Port Said.....	May 28-June 3.....	1	.....
Do.....	July 2-Sept. 2.....	1	7	
Germany.....				
Berlin.....	Apr. 30-June 24.....	.....	7	
Do.....	June 25-Sept. 2.....	.....	17	
Coblenz.....	July 2-Oct. 7.....	22	1	May 1-6, 1922: Five cases typhus fever at quarantine station of Osternothafen, in persons returning from Russia.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to November 3, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Germany—Continued.				
Königsberg.....	May 28-June 3.....	1	.....
Do.....	Sept. 3-9.....	1	.....
Stuttgart.....	July 22-Aug. 26.....	2	1	
Great Britain:				
Glasgow.....	Sept. 17-23.....	1	1	
Greece:				
Piræus.....	Aug. 1-31.....	1	.....
Saloniki.....	May 1-June 18.....	25	1	2 in Russian refugees.
Indo-China:				
Saigon.....	Aug. 6-19.....	1	.....
Java:				
East Java—				
Soerabaya.....	July 23-Aug. 5.....	4	2	
Mesopotamia:				
Bagdad.....	Apr. 1-June 30.....	7	2	
Mexico:				
Mexico City.....	Apr. 23-June 24.....	111	.....	Including municipalities in Federal district.
Do.....	June 25-Sept. 8.....	183	.....	Do.
San Luis Potosi.....	Sept. 10-Oct. 7.....	.....	.....	Present. Oct. 1-7, 1922: Deaths, 2.
Netherlands:				
Amsterdam.....	July 30-Aug. 5.....	1	.....
Norway:				
Christiania.....	Aug. 15.....	1	1	
Province—				
Finmarken.....	July 26-Aug. 5.....	12	2	Occurring in 3 localities.
Palestine:				
Jerusalem.....	June 27-Sept. 4.....	3	.....
Persia:				
Teheran.....	Mar. 22-June 22.....	.....	8	
Poland.....				Mar. 26-Apr. 22, 1922: Cases, 5,695; deaths, 349. Apr. 23-June 24, 1922: Cases, 9,402; deaths, 631. Recurrent typhus, Mar. 26-Apr. 22, 1922: Cases, 4,515; deaths, 155. Apr. 23-May 6, 1922: Cases, 1,598; deaths, 34. (Corrected report.) May 7-June 24, 1922: Cases, 4,790; deaths, 111.
Do.....				June 25-Aug. 5, 1922: Cases, 2,040; deaths, 140. Recurrent typhus, June 25-Aug. 5, 1922: Cases, 2,585; deaths, 84.
Warsaw.....	Apr. 23-June 24.....	156	.....	Among transient and permanent residents.
Portugal:				
Oporto.....	May 4-June 24.....	9	4	
Do.....	June 29-Aug. 19.....	2	1	
Seixal.....	Aug. 4.....	1	.....	Village opposite Lisbon.
Rumania:				Apr. 1-May 31, 1922: Cases, 62.
City—				
Bucharest.....	May 1-31.....	14	.....
Cerenauti.....	do.....	5	.....
Chisinau.....	Apr. 1-30.....	21	.....
Cluj.....	May 1-31.....	18	.....
Constanza.....	do.....	1	.....
Galata.....	do.....	1	.....
Sulina.....	do.....	2	.....
Province—				
Bucovina.....	Jan. 1-31.....	35	13	
Chisinau.....	Apr. 1-30.....	14	.....	Recurrent typhus: Cases, 7.
Transylvania.....	Jan. 1-31.....	16	3	
Russia:				
Esthonia.....	Apr. 1-June 30.....	44	.....
Do.....	July 1-Aug. 31.....	15	.....
Lettonia.....	Apr. 1-June 30.....	635	.....	Recurrent typhus: Cases, 40.
Do.....	July 1-Aug. 31.....	74	.....	Recurrent typhus: Cases, 21; paratyphus, cases, 3.
Siberia:				
Vladivostok.....	July 1-31.....	3	.....
Spain:				
Barcelona.....	July 13-19.....	.....	1	
Madrid.....	May 1-June 30.....	.....	16	
Do.....	July 1-Aug. 31.....	.....	7	
Seville.....	May 21-June 3.....	.....	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from July 1 to November 3, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Switzerland:				
Lucerne.....	Aug. 1-31.....	2		
Syria:				
Aleppo.....	Aug. 27-Sept. 2.....			Present in interior.
Tunis:				
Tunis.....	June 4-10.....	2		
Turkey:				
Constantinople.....	May 21-June 24.....	16		
Do.....	July 9-Sept. 30.....	29	4	
Union of South Africa.....				Apr. 1-June 30, 1922: Cases, 1,220; deaths, 214 (colored); white, 17 cases. July 1-31, 1922: Cases, 629; deaths, 95 (colored); white, 2 cases.
Cape Province.....				Apr. 1-June 30, 1922: Cases, 1,037; deaths, 194 (colored); white, 16 cases. July 1-31, 1922: Cases, 591; deaths, 83 (colored); white, 2 cases.
Do.....	Aug. 20-26.....			Outbreaks.
East London.....	do.....	1		
Natal.....				Apr. 1-June 30, 1922: Cases, 57; deaths, 7 (colored). July 1-31, 1922: Cases, 9; deaths 4 (colored).
Orange Free State.....				Apr. 1-June 30, 1922: Cases, 97; deaths, 10 (colored); white, 1 case. July 1-31, 1922: Cases, 25; deaths, 8 (colored).
Do.....	Aug. 27-Sept. 9.....			Outbreaks.
Transvaal.....				Apr. 1-June 30, 1922: Cases, 29; deaths, 2 (colored). July 1-31, 1922: Cases, 4 (colored).
Do.....	Aug. 27-Sept. 2.....			Outbreaks.
Johannesburg.....	May 1-June 30.....	7	1	
Do.....	July 1-31.....	1		
Yugoslavia.....				Aug. 7-13, 1921: 2 new cases.
Bosnia-Herzegovina.....	Aug. 7-13.....	1		(1921.)
Croatia-Slavonia.....	Sept. 4-10.....	1		Do.
Serbia—				
Belgrade.....	May 6-June 3.....	2		
Voivodina.....	Aug. 7-13.....	1		(1921.)
On vessels:				
S. S. Chios.....	July 18.....	1		At Kavak quarantine station, Bosphorus, from Novorossysk, a Russian Black Sea port. Vessel carried refugees for Saloniki, Greece.
S. S. Smolensk.....	June 14.....	1	1	From Danzig, May 30, 1922. At embarkation detention camp, Southampton, England. (Public Health Reports, June 30, 1922, p. 1610.)

YELLOW FEVER.

Brazil:				
Bahia.....	July 30-Aug. 26.....	3	2	
Mexico:				
Ciudad Victoria.....	Sept. 27.....	1	1	Origin, Tampico.
Tampico.....	July 27-29.....	1	1	From Panuco. Patient brought to Tampico on eighth day of illness.
Do.....	Aug. 30.....		6	Of these, 5 with origin at Panuco, State of Vera Cruz; 1 with origin at Tampico.
Tuxpam.....	Oct. 14.....	1		
On vessel:				
Schr. William E. Burnham.....	Sept. 13.....		1	At sea between Paramaribo and Mobile Quarantine, Ala., where the vessel arrived Sept. 14, 1922. The vessel left Freetown, Sierra Leone, June 25, and touched at Mungo and Paramaribo.